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AN ATLAS OF THE **U.S.S.R.**

By J. F. Horrabin and James S. Gregory



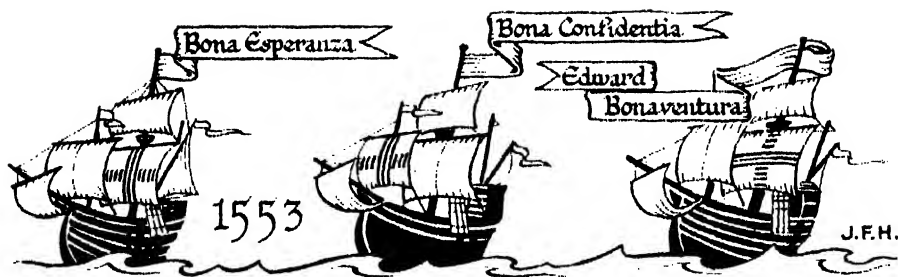
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F O R E W O R D

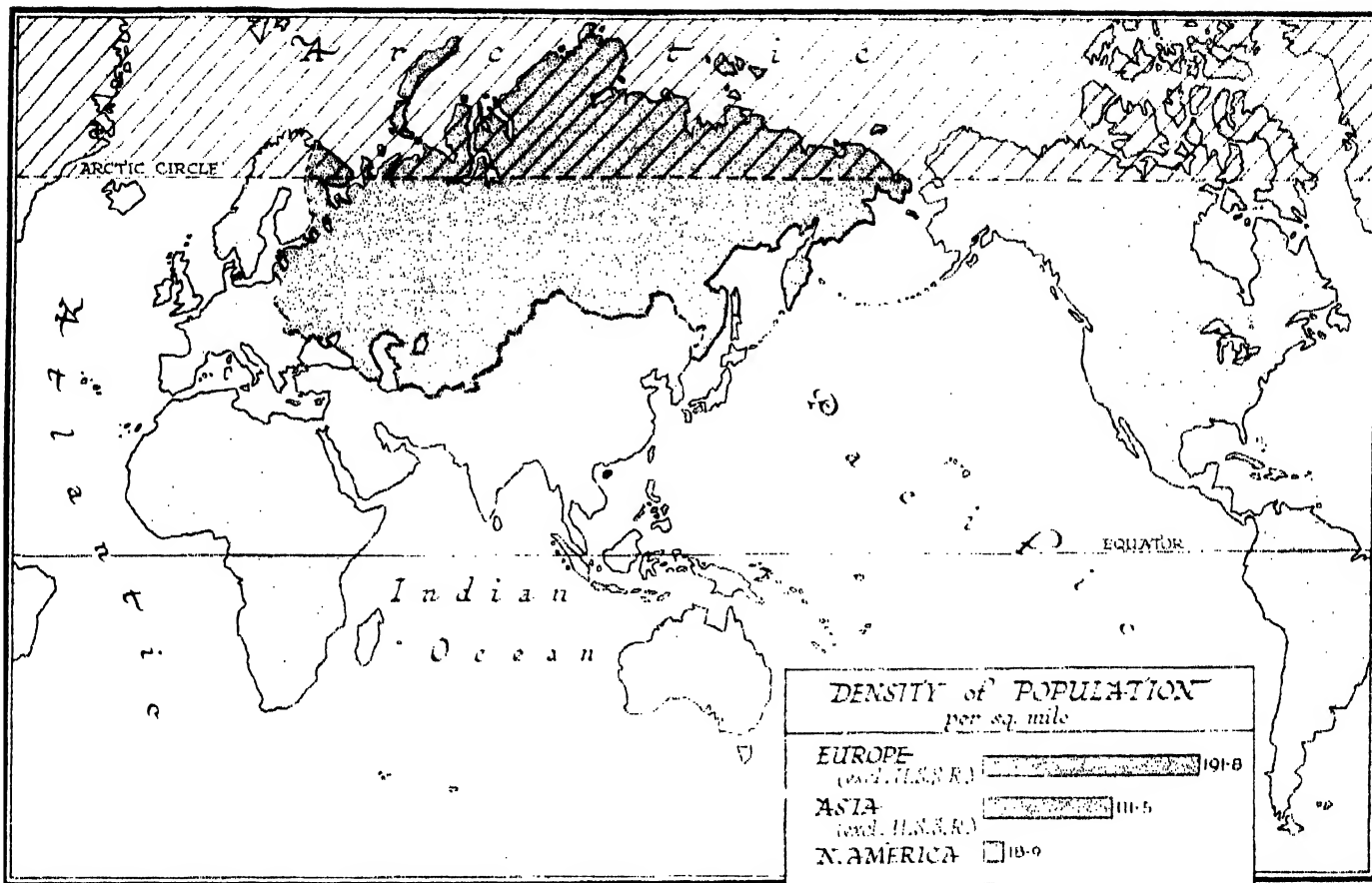
It was in 1553 that Sir Richard Chancellor and Sir Hugh Willoughby set sail from London in three stately ships (named above) to discover a North-East Passage. Chancellor alone returned, having found the way to the Northern Dvina, at the mouth of which Archangel now stands; and he brought back to England the first news of the realms of "the Duke of Moscovie".

It is the aim of this Atlas to give to English readers clear and concise information about the Moscovie of today, now grown from the small inland state of Chancellor's day to a vast Union of Republics stretching from the Baltic to the Pacific. One of the two authors has paid several visits to Moscovie during recent years; and the material of both maps and text has been gathered in the main from Russian sources not so far available in English.

Where the new European frontiers of the U.S.S.R. have been indicated, the Curzon Line has been taken as the Soviet-Polish frontier, and since detailed information concerning the economic reorganization of the new territories is not yet available, data for these areas has in some cases been omitted. On certain maps the 1939 frontier is shown, since they were based entirely on data for the U.S.S.R. during 1938-9, when the Baltic Republics, Western Byelorussia, etc., were not included within the Soviet Union.

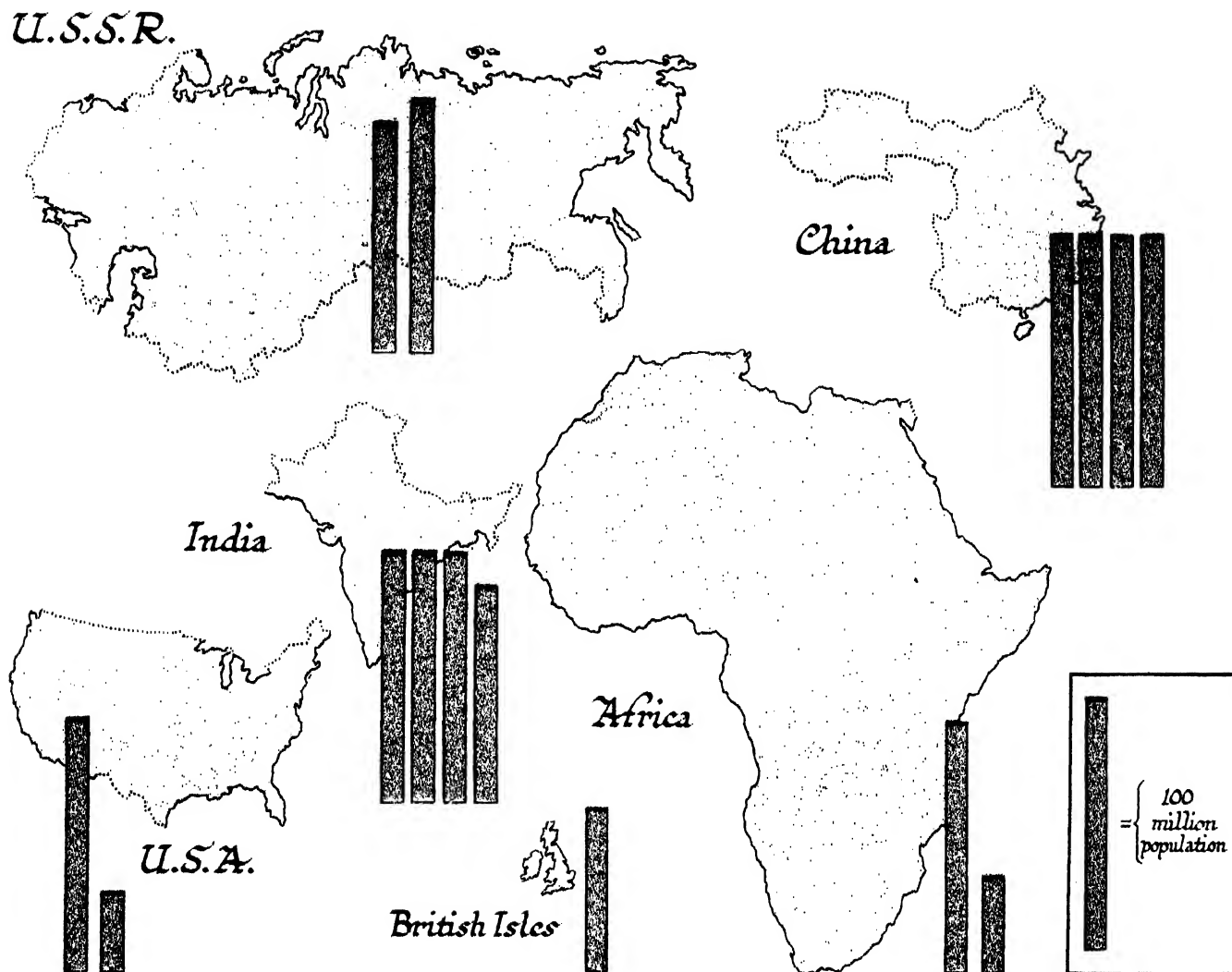
We hope that *Bona Esperanza* and *Bona Confidentia* will prove to be names of happy omen for the alliance between the Russian and British peoples during the years ahead.

J. F. H.
J. S. G.



I. The Soviet Union

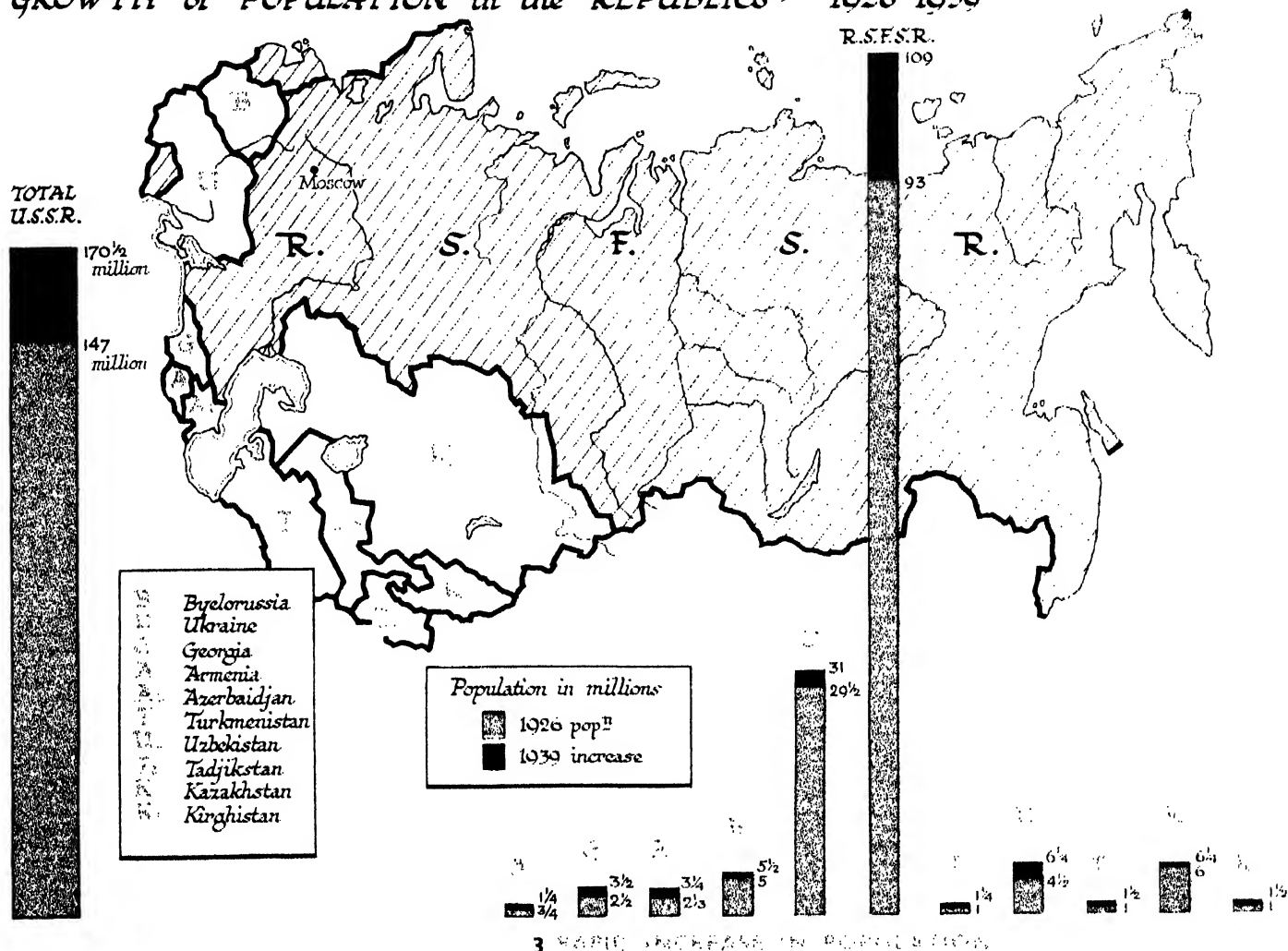
The Soviet Union extends for about 6000 miles from the Baltic to the Pacific. Access to the Atlantic is obtained through Baltic ports, to the Pacific through Vladivostok, to the Mediterranean through the Black Sea, and to other parts of both Europe and Asia across common frontiers with a dozen neighbouring states.



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The U.S.S.R. ($8\frac{1}{2}$ million square miles in area) although the largest continuous mass of land within a single state, is relatively thinly populated. As a political unit its area is exceeded only by that of the British Empire.

GROWTH of POPULATION in the REPUBLICS — 1926-1939

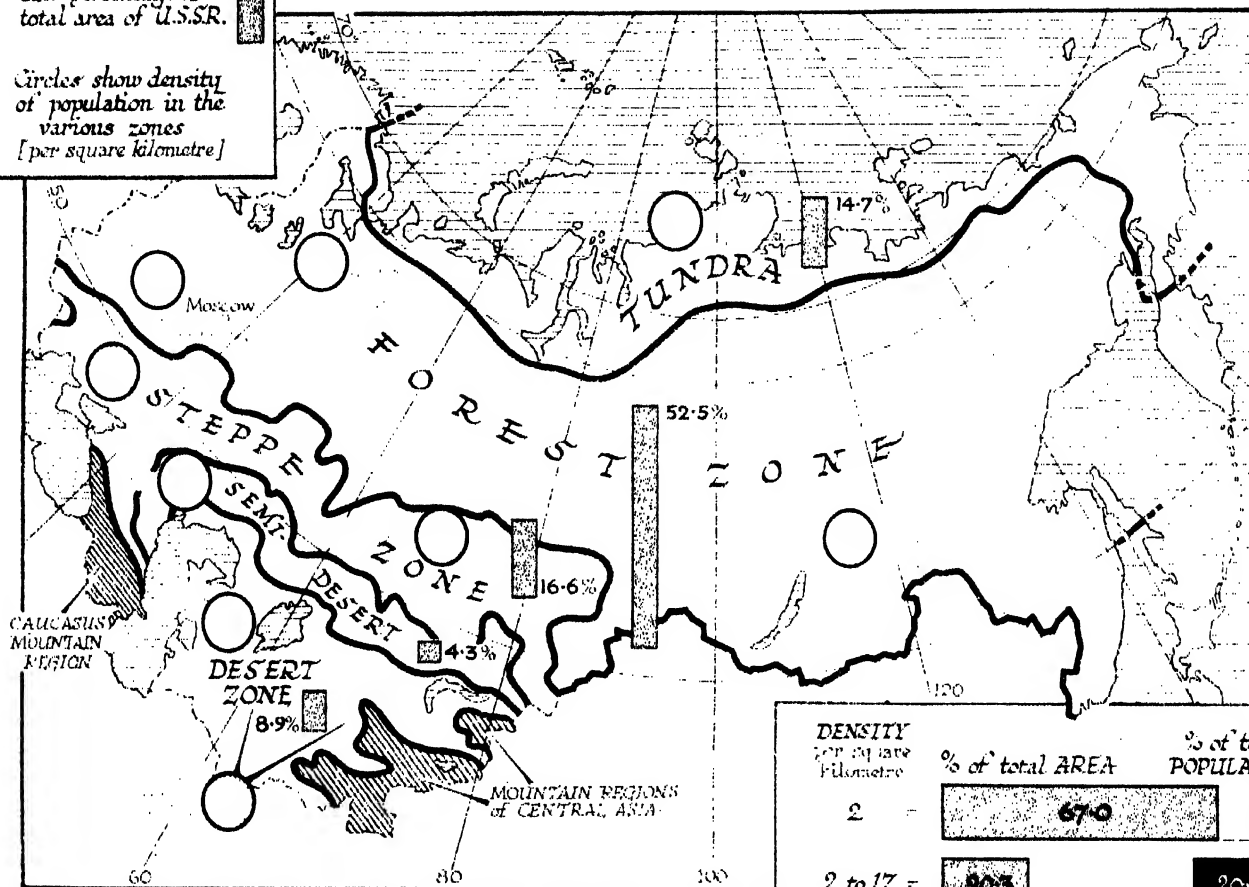


3 RAPID INCREASE IN POPULATION

Since 1926 increase in population has been most marked in the Caucasus and Soviet Central Asia, where liberation of former colonial people: was accompanied by rapid industrial and agricultural expansion. Migration to new enterprises in the east was the cause of the relatively small increase in European Russia.

Red columns indicate percentage of total area of U.S.S.R.

Circles show density of population in the various zones [per square kilometre]



DENSITY per square kilometre	% of total AREA	% of total POPULATION
2 -	67.0	7.2
2 to 17 -	20.3	20.3
17 to 40 -	7.7	32.9
40 =	5.0	39.6

4. POPULATION DENSITY

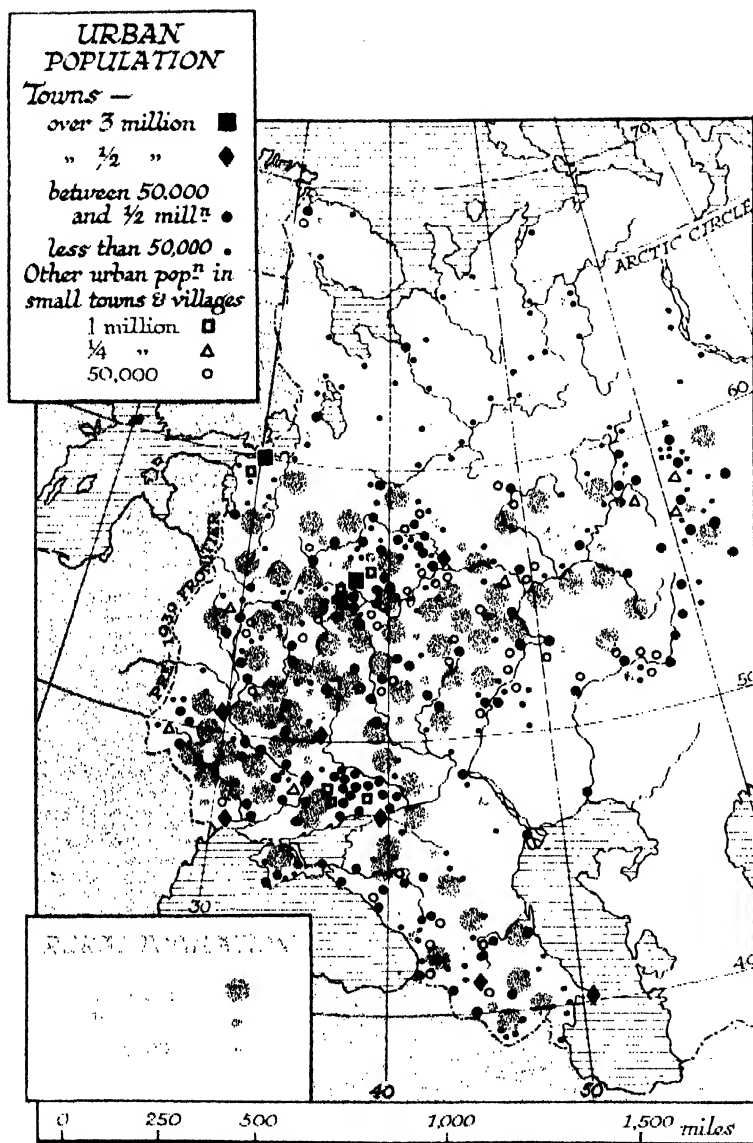
The Soviet Union as a whole is thinly populated, the average density being only 21 per square mile. The severe climate and poor soils of the northern forests and the dry climate east of the Volga create difficulties for agriculture and human life, and these sparsely peopled regions occupy a large proportion of Soviet territory.

POPULATION OF THE U.S.S.R.

In 1939 the population of the U.S.S.R. included within the present frontiers was approximately 193 millions—a large population as far as the absolute number is concerned, but not in relation to the great size of the country. Although more than 75% of the people are Russians, Ukrainians and Byelorussians, there are fourteen national groups with populations greater than 100,000 each, and more than 100 smaller ones with a total population of about 17 millions. About 64% of the people live within the R.S.F.S.R., 21% in the Ukraine, 5% in Transcaucasia and 10% in Soviet Central Asia. More than one half of the total is concentrated in European Russia.

The increase of 1.3% per annum between the census of 1926 and that of 1939 was greater than in Great Britain or the U.S.A. The greatest increase was in industrial areas. The urban population increased from 17.9 to 32.8% of the total—largely owing to the migration of people from the countryside to new industries in the towns. During the intercensal period the increase in urban population was twice that of the rural population, yet agricultural productivity increased simultane-

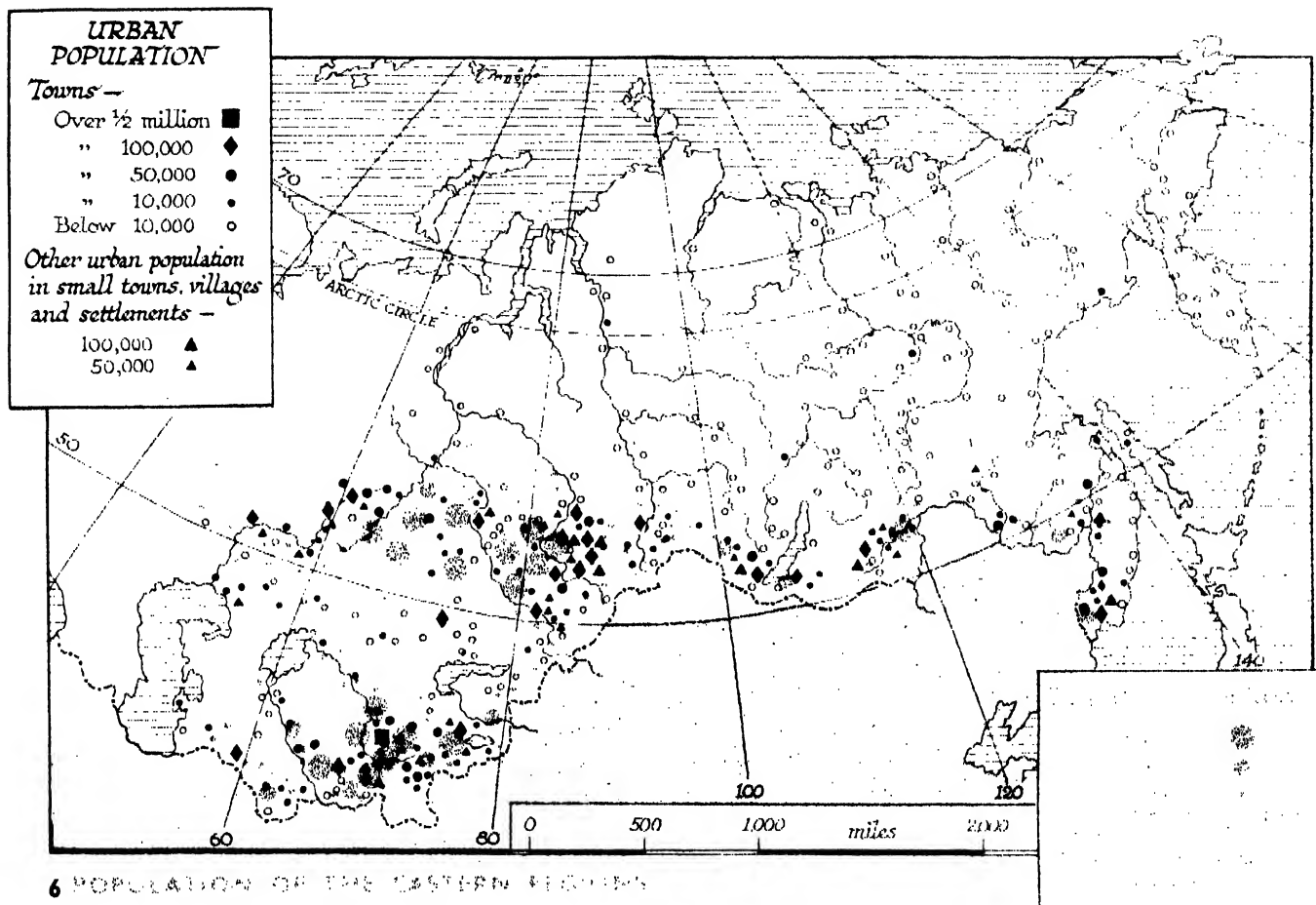
ously as a result of mechanised and more rational methods of farming. The agricultural population, however, is still a little larger than the urban population. The expansion of industry east of the Urals is reflected in the foundation of entirely new towns, while others were small villages less than fifteen years ago. Some three million people migrated to the Urals, Siberia and the far east between 1926 and 1939—resulting in a decreasing population or a relatively low rate of increase in certain parts of European Russia. The tendency has been towards a more even distribution of people throughout the country as a whole—filling in of the blank spaces on the population map. Expansion of industry and agriculture in the various national republics and regions has been accompanied by a striking growth of population, particularly in Soviet Central Asia, Georgia and Armenia. In the far north and other remote regions, many native peoples who in 1918 were in danger of becoming extinct have increased in number as a result of their newly-won freedom. The population of the Kirghiz, Tadjik, Uzbek and Turkmen republics increased by nearly three million or 38%, including 1.7 million people who came from other parts of the U.S.S.R. The population of the Soviet Republics in 1939 was as follows (in millions): R.S.F.S.R., 109.3; Ukraine, 31.0; Byelorussia, 5.6; Azerbaijan, 3.2; Georgia, 3.5; Armenia, 1.3; Turkmenia, 1.2; Uzbekistan, 6.3; Tadjikistan, 1.5; Kazakhstan, 6.1; Kirghizia, 1.5.



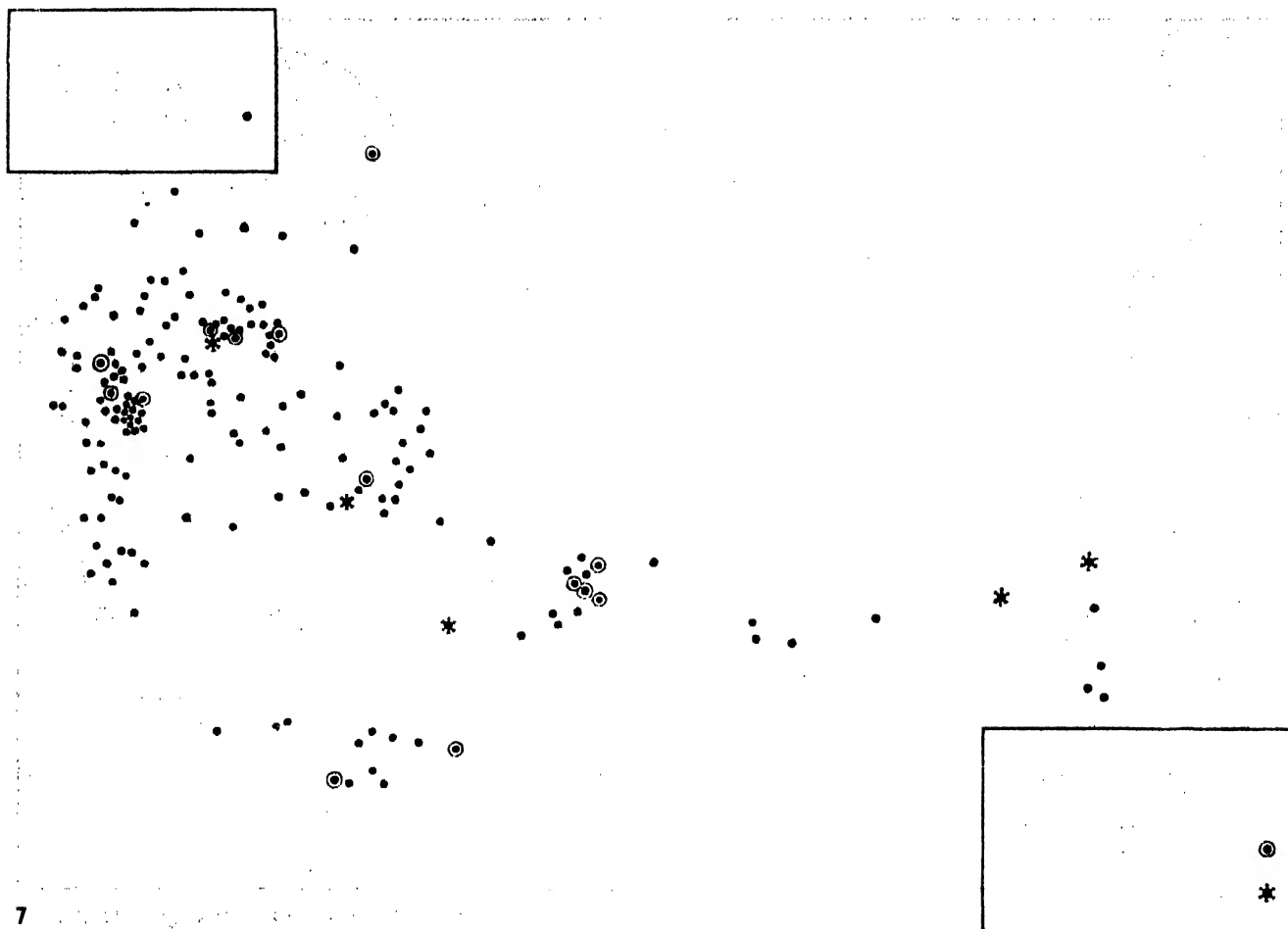
5 DISTRIBUTION OF POPULATION IN EUROPEAN RUSSIA

The homeland of the Russian people occupies about one half of European Russia. Between the western frontier and a line drawn from Leningrad through Kazan, Stalingrad and Rostov-on-Don, live more than half of the people of the entire Soviet Union. To the north the vast coniferous forests are almost uninhabited, with small agricultural and industrial settlements close to the rivers—the chief means of transport and communication. The central deciduous forest zone was settled early in history since the climate was neither too cold nor too dry for agriculture. Because of its central position, close to the chief rivers, the Moscow region became an important commercial and industrial centre.

From the deciduous forests the Russian state expanded, absorbing the Ukrainian and North Caucasian steppe, where the fertile soils and moderate rainfall created favourable conditions for agriculture, and the Dnieper, Donetz and Caucasian mineral deposits became the basis of large industries. Consequently the south soon became thickly populated.



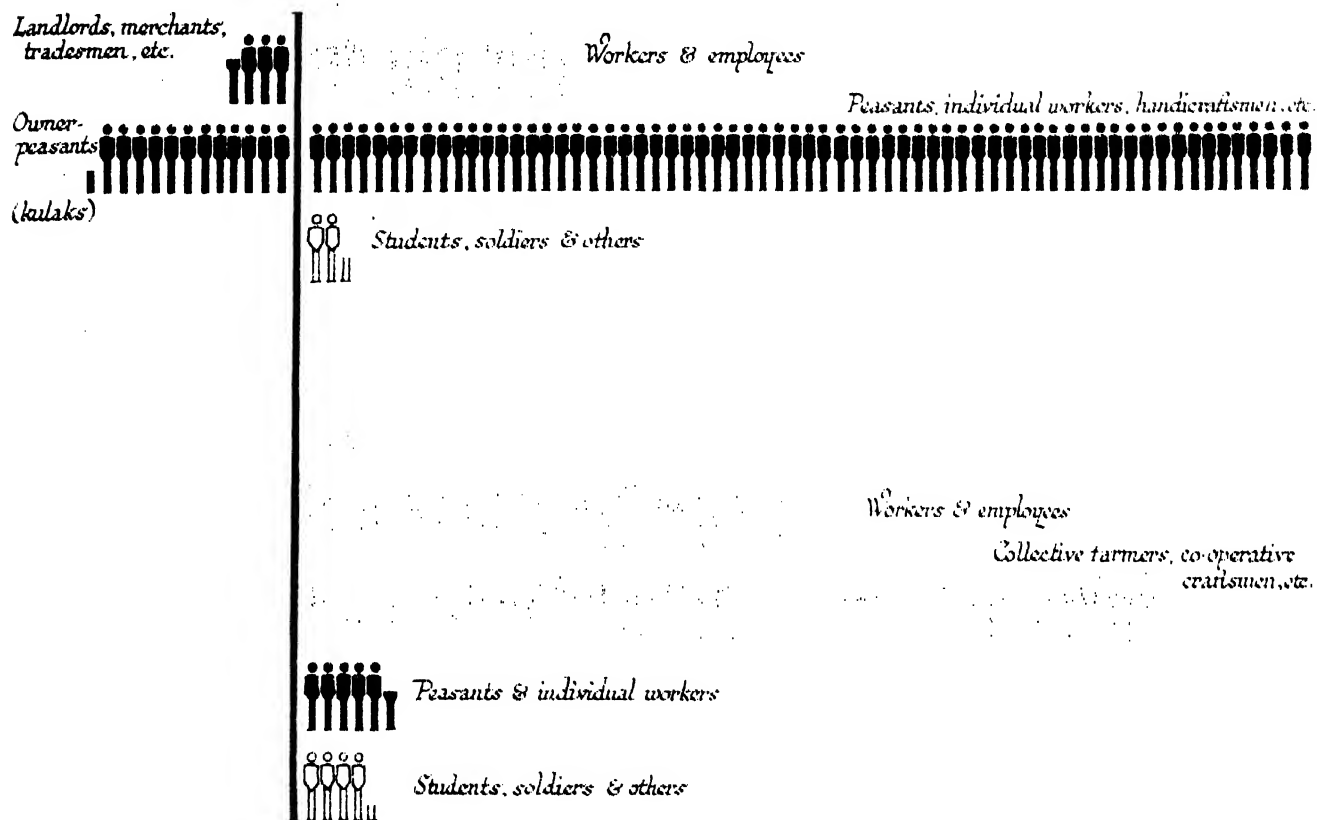
Between the thinly populated forest lands of the north and the semi-desert and desert lands of Kazakhstan and Central Asia, lies a belt of steppe or prairie, now partly cultivated and containing agricultural settlements, and industrial regions (the Urals and the Kuznetsk Basin)—continued as "islands" of relatively dense population in eastern Siberia. Along the southern and eastern borders of Kazakhstan and Central Asia are the fertile and densely populated irrigated valley lands.



7

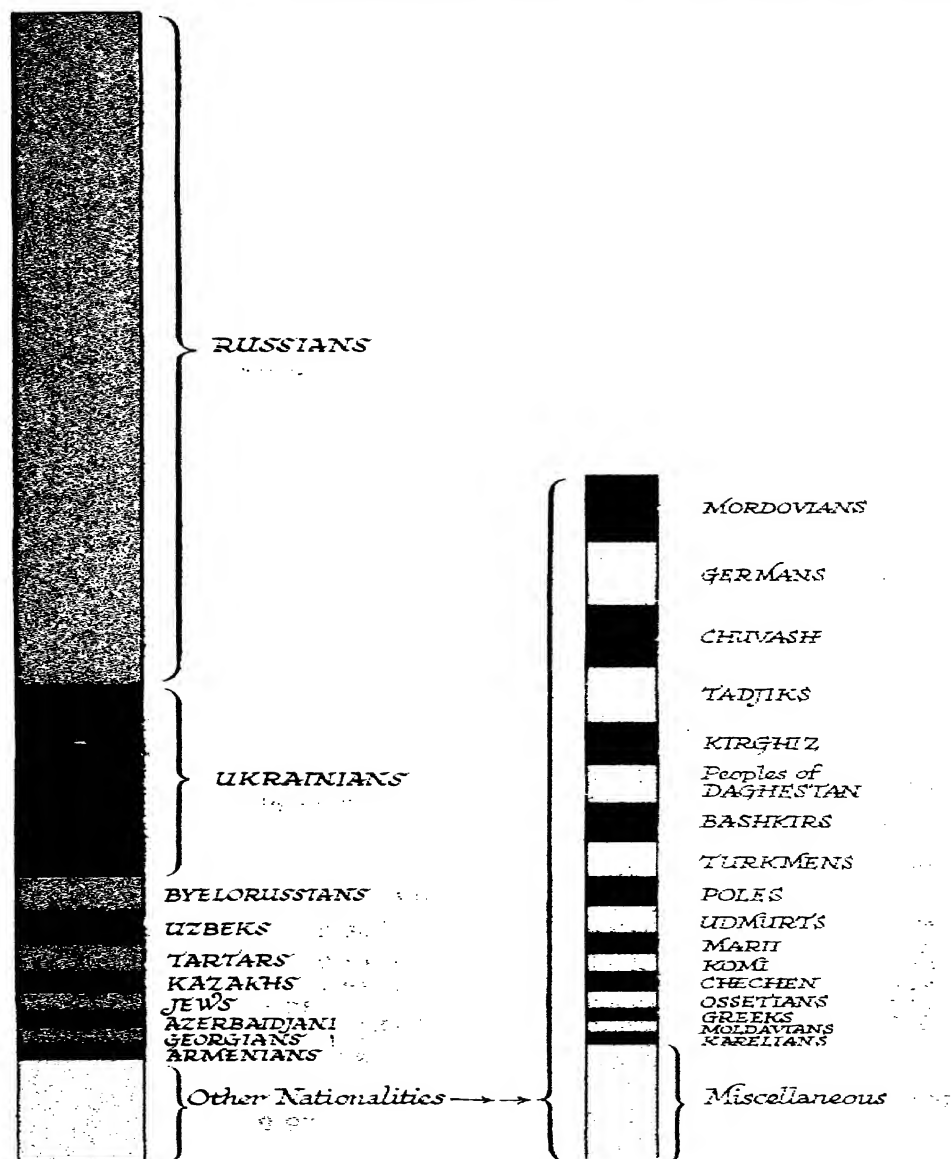
Industrial towns have expanded and new ones grown up both in the older industrial regions of Central European Asia and the Ukraine, and in new areas in the east—the Urals, W. Siberia, the Far East, the Kazakh deserts (Karaganda), Soviet Central Asia and the North (Murmansk)—a reflection both of the policy of economic expansion in former “backward” areas and the creation of industrial bases far from the front in time of war.

CLASS COMPOSITION of the POPULATION — 1913 and 1937



Pre-revolutionary Russia was mainly an agricultural country where the majority of the peasants possessed either no land or only very small strips. The Soviet Government abolished private ownership of land and industries, while the rapid industrialisation of the country has resulted in a large increase of workers and employees as compared with peasants. Most of the latter now work on collective farms organised co-operatively, while individual craftsmen work together in small co-operative enterprises or artels.

NATIONAL COMPOSITION of POPULATION — 1939



9. THE U.S.S.R. NATIONAL STATE

The Slav peoples of the U. S. S. R. (Russians, Byelorussians and Ukrainians) constitute more than $\frac{3}{4}$ of the entire population. Peoples of Turkic origin form the second largest group but include only 4%. There are dozens of relatively small national groups and all enjoy complete political and economic equality, as well as education, literature, etc., in the native language.

THE PLAINS AND HIGHLANDS OF THE U.S.S.R.

The Soviet Union consists essentially of an enormous plain which extends from Western Europe and the Baltic to the River Yenisei in Central Siberia, and is cut in two by the Urals—not a difficult mountain barrier, as the central ranges are not of great altitude and are cut by low passes. The Soviet highlands occur mainly around the edges of the plain—the Caucasus (Mt. Elbrus 18,470 ft.), the mountains of Central Asia (Mt. Stalin, 24,590 ft.); the highland plateau of Central Siberia, bordered on the south by the Sayan and other ranges, and on the east by the Verkhoyansk, Sikhote Alin, Kolyma, Cherski and Anadyr ranges—all extremely high mountain systems. In the north-west are the Khibin mountains of the Kola Peninsula. In European Russia the land is not absolutely level; in the centre the surface rises to form rolling upland plains between the great rivers. The low northern plains are crossed by hills, usually three or four hundred feet high.

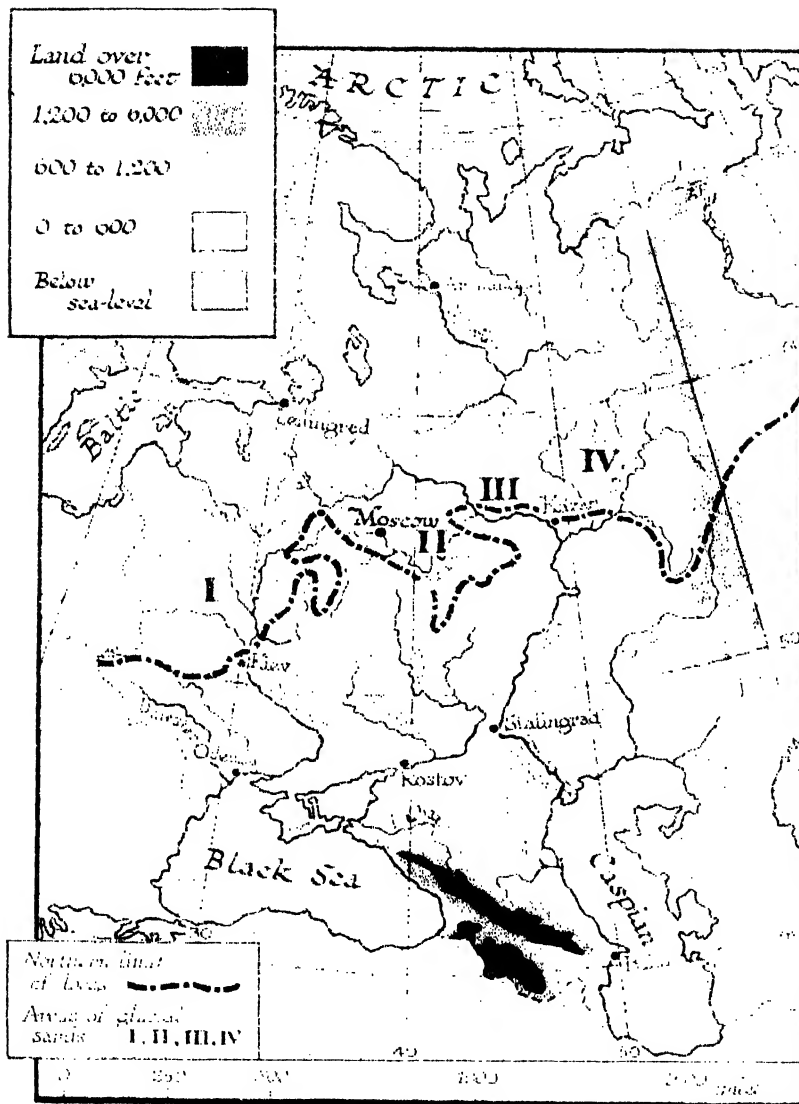
Large rivers rise in the centre of the plain of European Russia and provide valuable waterways across it in all directions—to the Baltic and White Sea in the north, the Black Sea and Caspian in the south. They are connected by canals and so form one of the largest systems of inland waterways in the world.

THE CLIMATE

The U.S.S.R. consists of a huge mass of land far away from the sea. Perm, for example, is about 700 miles from the nearest coast. Consequently, throughout most of the country there are no mild moist winds from the ocean to temper the severity of winter or lessen the heat in summer, and apart from the western lands of European Russia and those regions close to the mountains in the south, there is neither heavy rain nor heavy snow. These continental features of the climate—cold winters, hot summers and dryness—become more marked towards the interior. East of the Volga, drought becomes a difficulty which the farmers have to contend with almost everywhere. Summers become shorter and cooler and winters longer from south to north. Only in the coastal regions of the Crimea and also along the eastern shores of the Black Sea, protected by mountains from cold winds, are winters mild by English standards. The climatic regions shown in Map 16 correspond closely to the soil and vegetation regions shown in Map 17.

The following are some typical average temperatures in degrees Fahrenheit, for (a) January, (b) July:

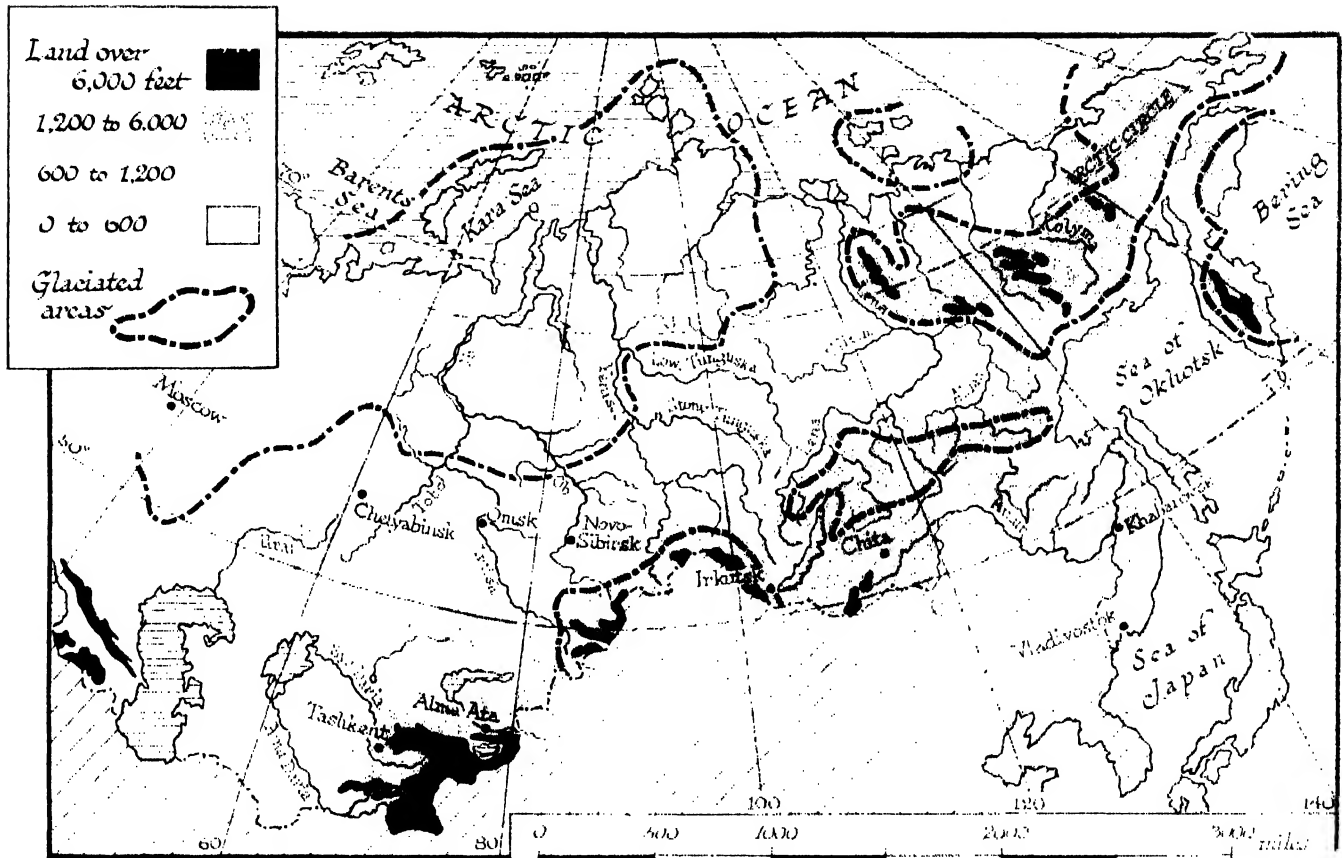
	(a)	(b)
Batum	43	74
Tashkent	30	81
Leningrad	15	64
Moscow	12	66
Tomsk	— 3	66
Yakutsk	— 46	66
Verkhoyansk	— 59	60



10 *Physical Features of European Russia*

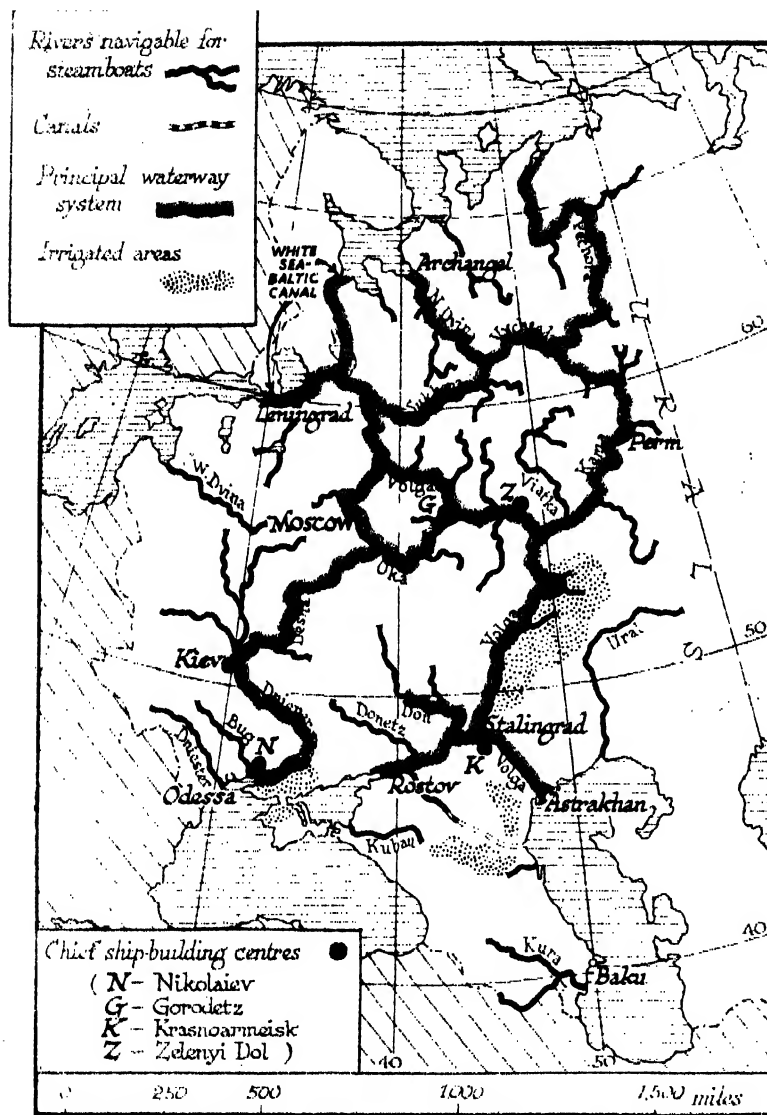
We can divide European Russia into the following regions:

- (1) The rough rocky land of granite and lakes in northern Finno-Karelia, rising to about 4000 ft. in the Khibin mountains.
- (2) The northern plains, beds of enormous lakes formed by melting ice at the end of the Ice Age, and crossed by low hills or moraines--dumps of clay and sand dragged along under the advancing glaciers. This is forested lake-strewn country with numerous bogs and marshes, and covered with a complex network of rivers and streams.
- (3) The southern plains, rolling uplands (over 600 ft. high) open treeless country now mostly cultivated, falling in steep almost mountain-like slopes to the western sides of the river valleys, but sloping gently down to the broad plains on the eastern sides.
- (4) Monotonously level plains stretching from the land to the north of the Black Sea, to the Caspian, with the Donetz plateau in the centre.
- (5) The rather low rounded slopes of the Ural mountains.
- (6) The high snow-clad Caucasus mountains.



11

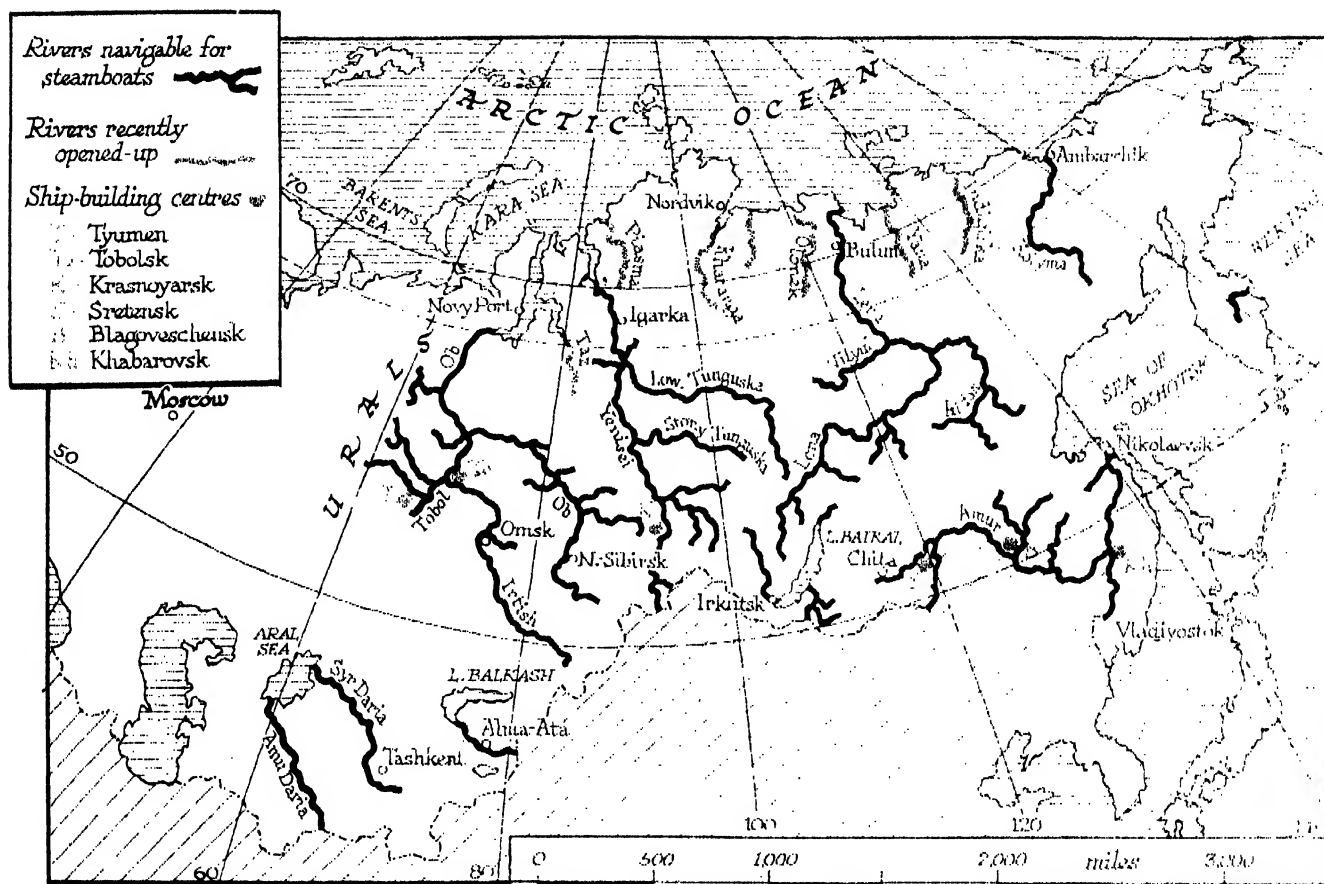
East of the Urals lies (1) The W. Siberian plain, a monotonously level lowland between the Urals and the Yenisei, separated by some higher land in the south from (2) The desert and semi-desert plains around the Aral Sea. (3) The lofty snowcapped highlands along the southern and eastern borders of Siberia and Central Asia. (4) The Central Siberian Plateau between the Yenisei and Lena rivers.



12 EUROPEAN RIVERS AND WATERWAYS

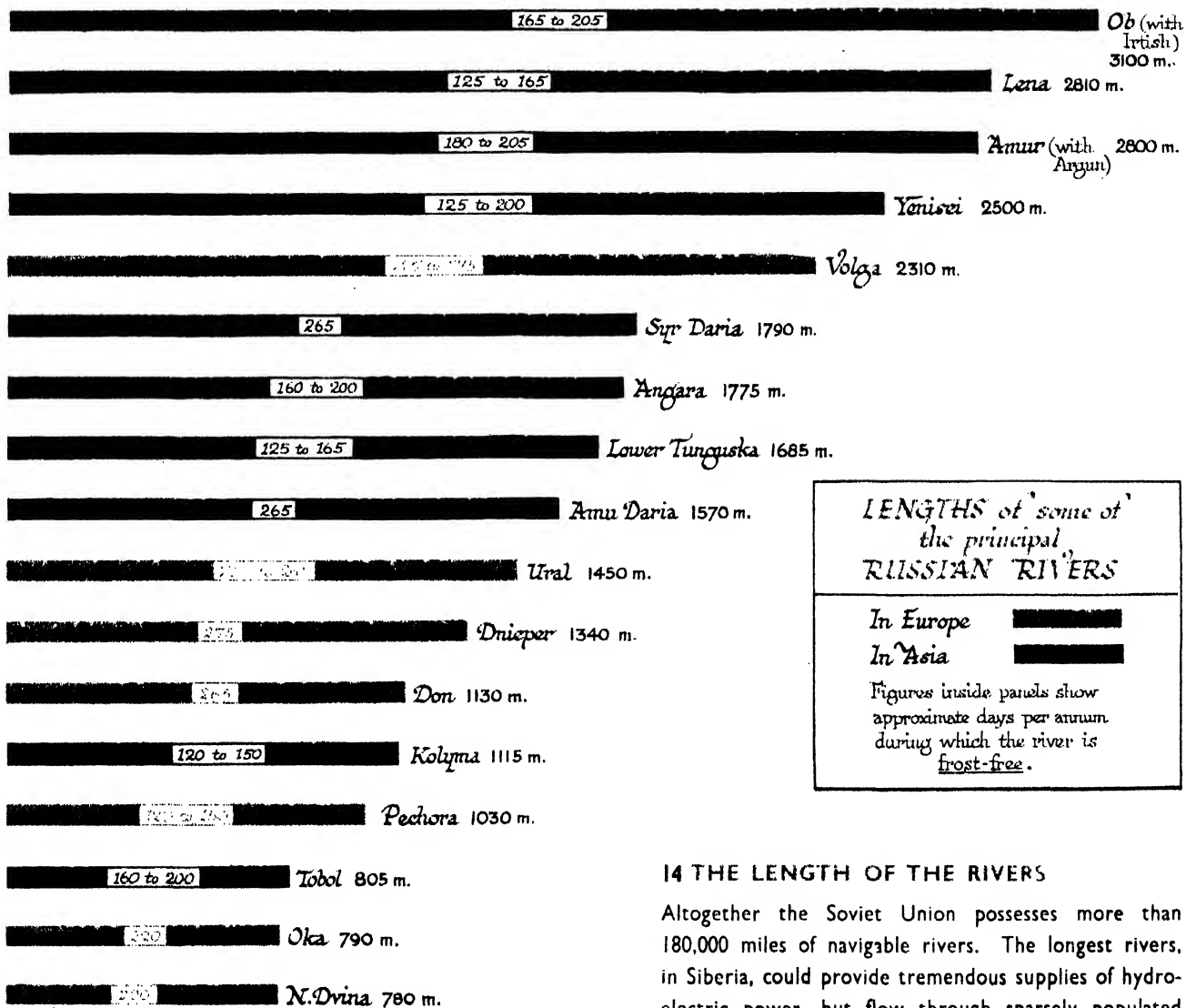
The great rivers of European Russia flow outwards in all directions from the centre linking all parts of the plain with the chief ports—an immense system of navigable inland waterways which carries about 60 million tons of freight per year. The northern rivers are of great importance for floating timber down to sawmills and ports, and large quantities are transported down the Volga and Dnieper to the treeless steppe lands of the south. Along the Volga, wheat from the steppe zone and oil from Baku are carried northwards.

The rivers are also utilised for the production of hydro-electric power (e.g. at the famous Dnieper power station) while large tracts of arid country are being irrigated by the Volga. The chief disadvantage of water transport in European Russia is that the rivers are icebound in winter (from 2½ months in the south to 6 months in the north).



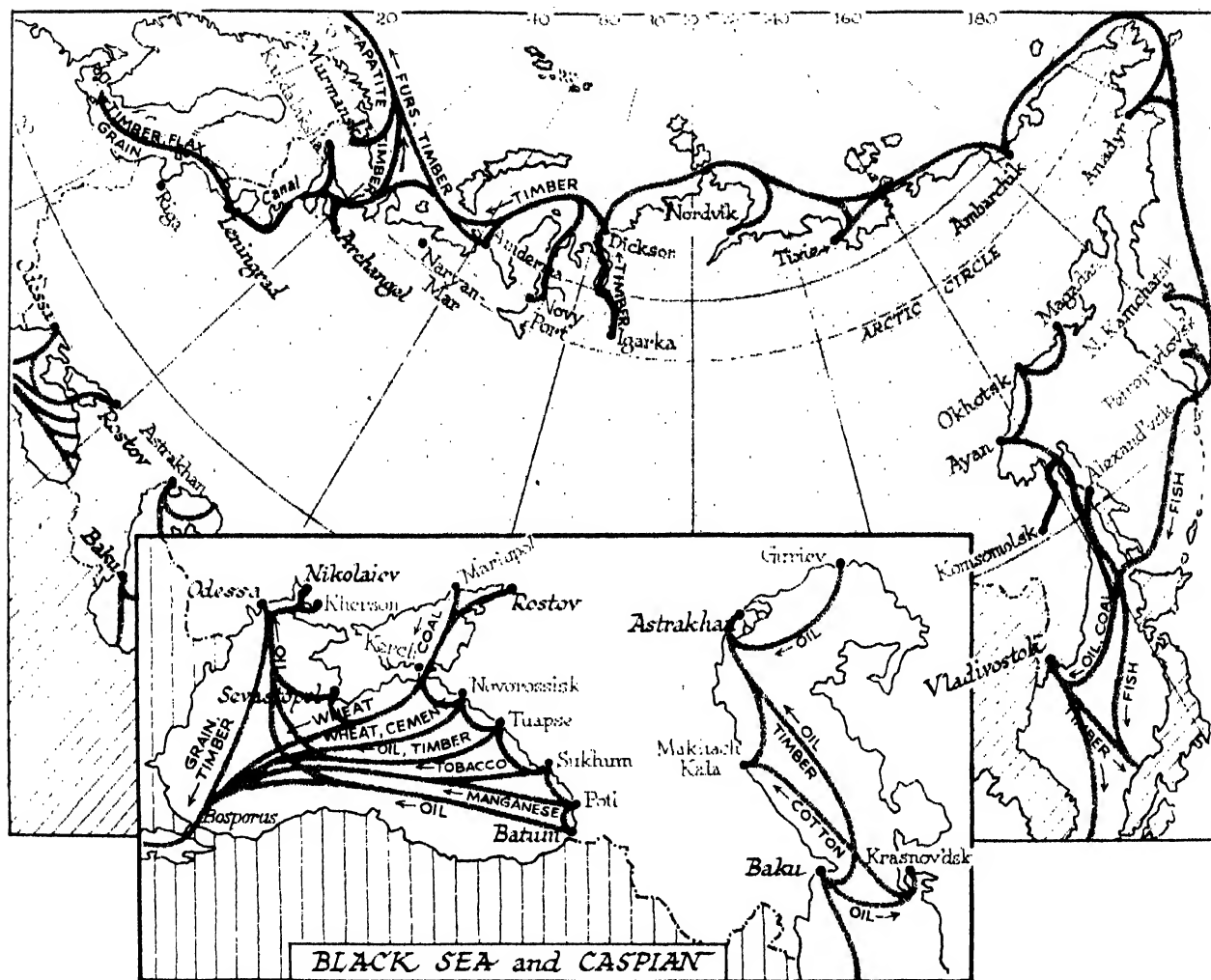
13 THE SIBERIAN AND ASIATIC RIVERS

The great Siberian rivers are navigable waterways which penetrate for some two thousand miles into road-less and rail-less country. In summer, together with the Arctic Sea route, they provide valuable cargo routes between Siberia, the rest of the U.S.S.R. and foreign countries. The Asiatic rivers are used mainly as sources of hydro-electric power (in the mountains) and for irrigating the semi-desert plains.



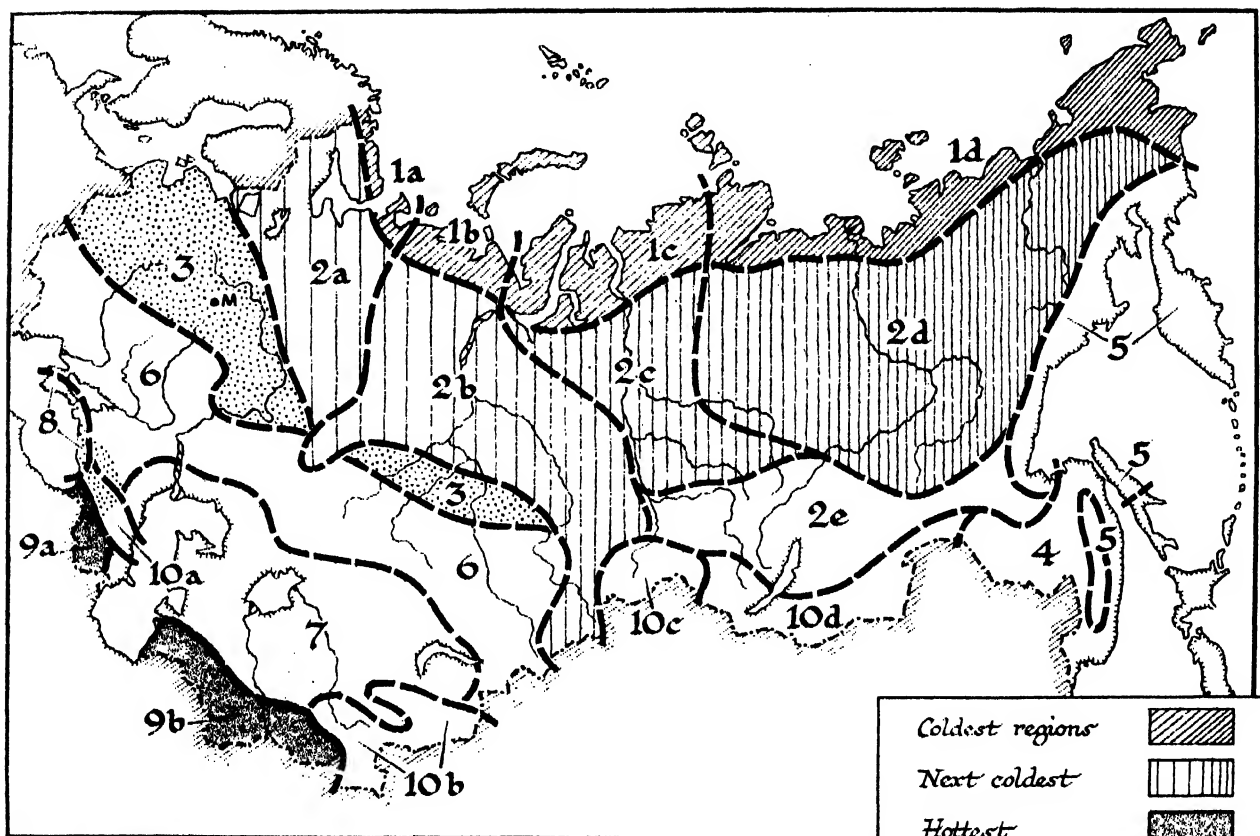
14 THE LENGTH OF THE RIVERS

Altogether the Soviet Union possesses more than 180,000 miles of navigable rivers. The longest rivers, in Siberia, could provide tremendous supplies of hydro-electric power, but flow through sparsely populated regions where industry is but little developed.



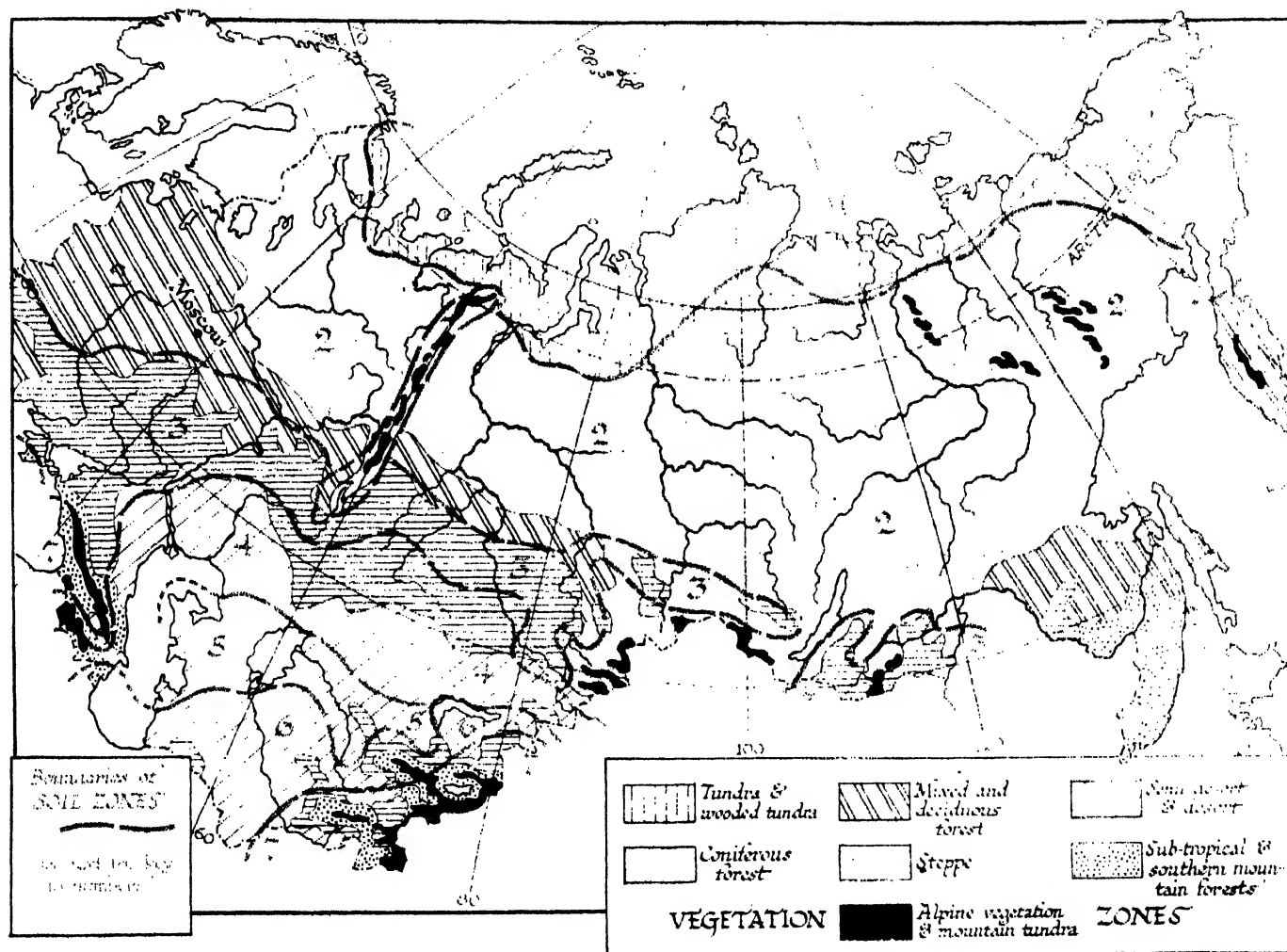
15 SEAWAYS AND PORTS

The ports of the Soviet Union give access to the Atlantic, Pacific and Mediterranean. Most of them, however, are closed by ice during winter. Hence the importance of the more or less ice-free Baltic ports for trade between the U.S.S.R. and the rest of the world.



16 CLIMATE REGIONS

The main features of the climate of the U.S.S.R. are the warm summers and cold winters, the summers becoming longer and warmer and the winters shorter and less cold from north to south. Towards the interior (away from the influence of moisture-bearing winds from the ocean) the climate becomes gradually dryer and more continental (colder winters and warmer summers). The key to the map is given on page 24.



17 SOILS AND NATURAL VEGETATION

The soils and natural vegetation of the U.S.S.R. are largely the product of climatic conditions, so that their distribution bears a close relationship to the distribution of climatic regions shown in Map 16. (The key to the maps is on the next page.)

CLIMATIC REGIONS

(Key to Map 16)

- (1) Long severe winters, short cool summers with drizzle.
- (2) Cold winters but longer and warmer summers.
(a), (b), (c), (d), represent increasing dryness and increasing severity of the winter.
- (3) Cold winters, warm summers with showers, and enough rain and snow for forest growth and mixed farming.
- (4) Cold dry winters and warm damp summers.
- (5) Very raw climate—cold winters and cool summers, both raw and damp.
- (6) The steppe region—not enough rain for trees. Cold dry winters, long hot dry summers. Light rainfall in early summer.
- (7) As for (6) but with very little rain, so that semi-desert conditions prevail.
- (8) The warm sub-tropical and Mediterranean lands, with mild short winters, but hot summers and abundant rainfall, in showers rather than in continuous periods.
- (9) As for (8) but with little rain. (These lands together form the irrigated "cotton belt" of the U.S.S.R.)
- (10) Cold mountain climate, with heavy snowfall and rainfall in the west. The valleys and lowlands between the mountains have warm summers.

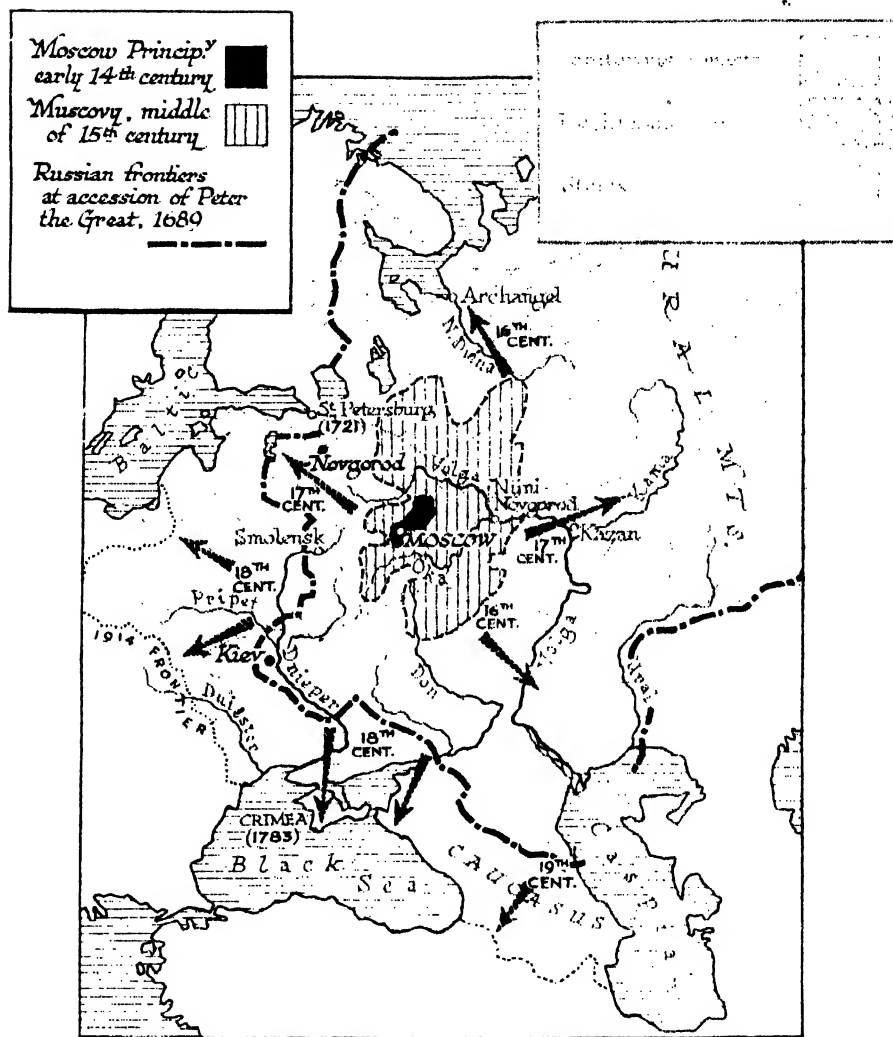
SOILS & NATURAL VEGETATION

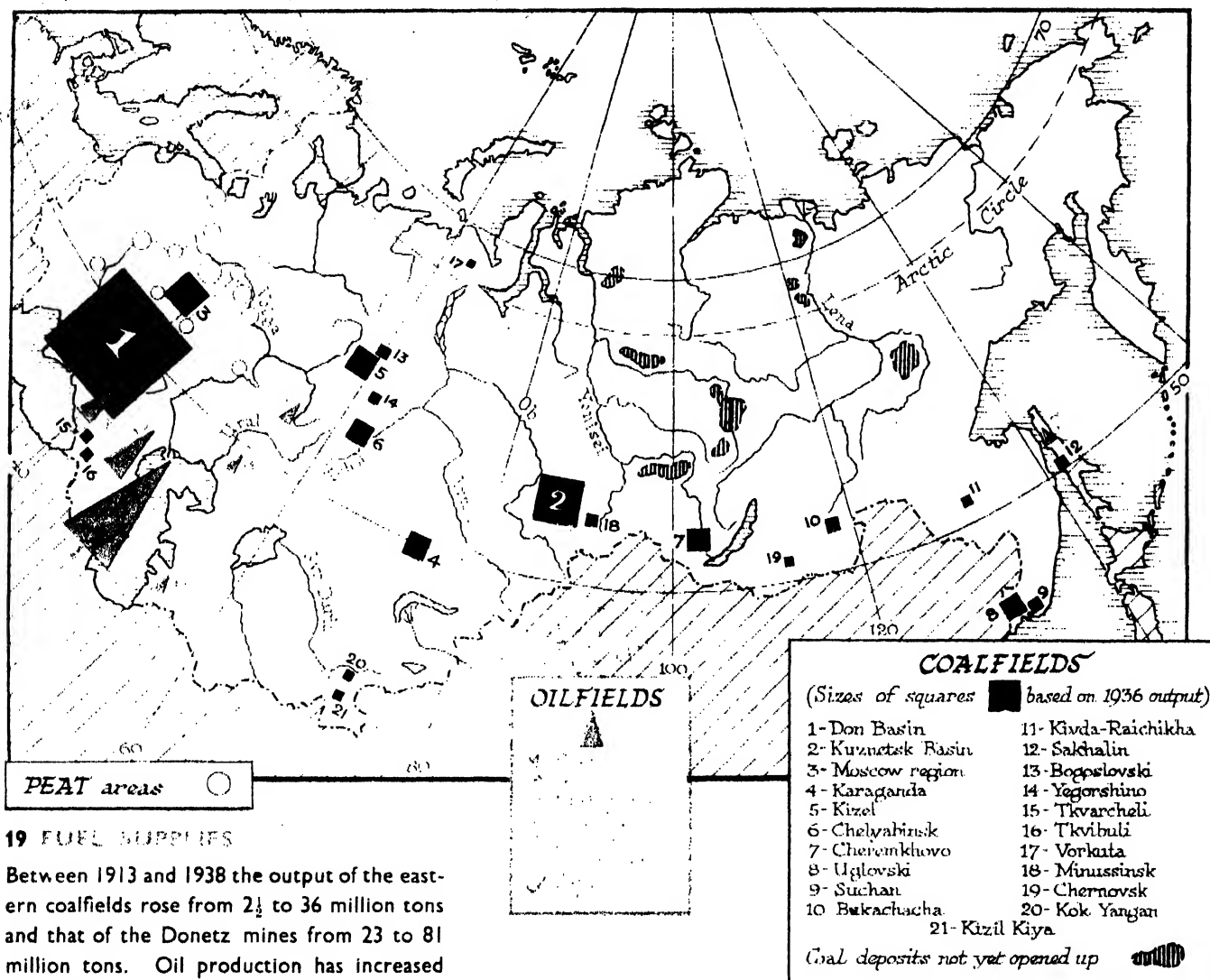
(Key to Map 17)

- (1) The subsoil is perpetually frozen, there is little plant life and the severe cold hinders decomposition into humus. Hence the ground has only a thin peaty cover.
- (2) The water from melting snow in spring washes out mineral and organic matter from the upper layers, leaving a poor, acid, ash-coloured soil known as podsol.
- (3) Owing to the dry climate there is not enough moisture to wash out considerable amounts of organic and mineral matter. Decayed remains of grass vegetation which covered the land for centuries have formed a deep fertile black soil.
- (4) There is a poor grass vegetation owing to the arid climate, and hence less organic matter in the soil than in the black earths.
- (5) In this semi-desert zone there is very little vegetation, and hence little organic matter, while absence of moisture allows accumulation of carbonate of lime near the surface and there are large areas where the soil is saturated with salts (there is not sufficient rain to wash them out).
- (6) Sands are formed by the action of sun and frost which break the rocks into finer and finer particles. Owing to lack of moisture there is no organic matter.
- (7) With increasing altitude, mountain slopes pass through climatic and soil zones similar to those met with in the plain, passing from the warm south to the cold north.

18 HISTORICAL DEVELOPMENT

In early history settled life was possible only on a basis of agriculture (growing food and rearing animals). The first settled communities of the Russian Plain were in the deciduous forest zone (between Leningrad, Kazan and Kiev). In the northern coniferous forests it was too cold for agriculture, and in the south and east too dry, and here the the steppe (or prairie) was the natural home of Asiatic tribes of wandering stock-breeders. The Russians were often attacked by the latter, and were ruled by the Tartars for nearly two centuries ; but in the 15th and 16th centuries all the Russian principalities were united under the rule of the Moscow princes—largely owing to Moscow's central position, and its proximity to all the great river trading routes. The Tartar domination was overthrown and the small Russian state began to expand over the plain in all directions.






19 FUEL SUPPLIES


Between 1913 and 1938 the output of the eastern coalfields rose from $2\frac{1}{2}$ to 36 million tons and that of the Donetz mines from 23 to 81 million tons. Oil production has increased threefold, and in European Russia lignite and peat are now widely used as industrial fuel.

COAL production ————— Southern Area ■ Eastern ■ Central □

1913  = 29.2 million tons

1936  = 120.4 million tons

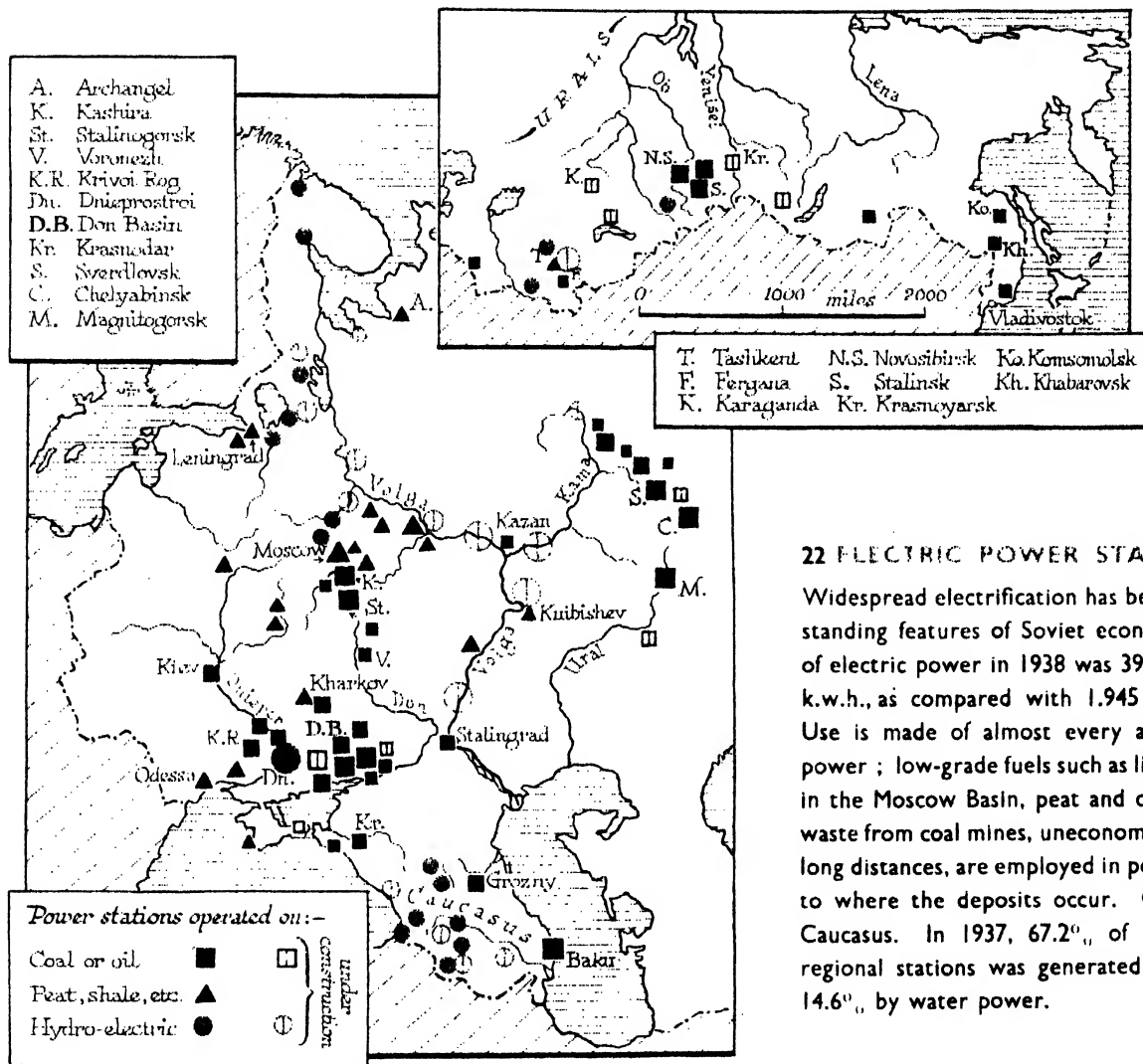
OIL production ————— Caucasus-Caspian ■ Central Asia □ Volga-Urals ■ Far East ■

1913  = 9.23 million tons

1938  = 32.23 million tons

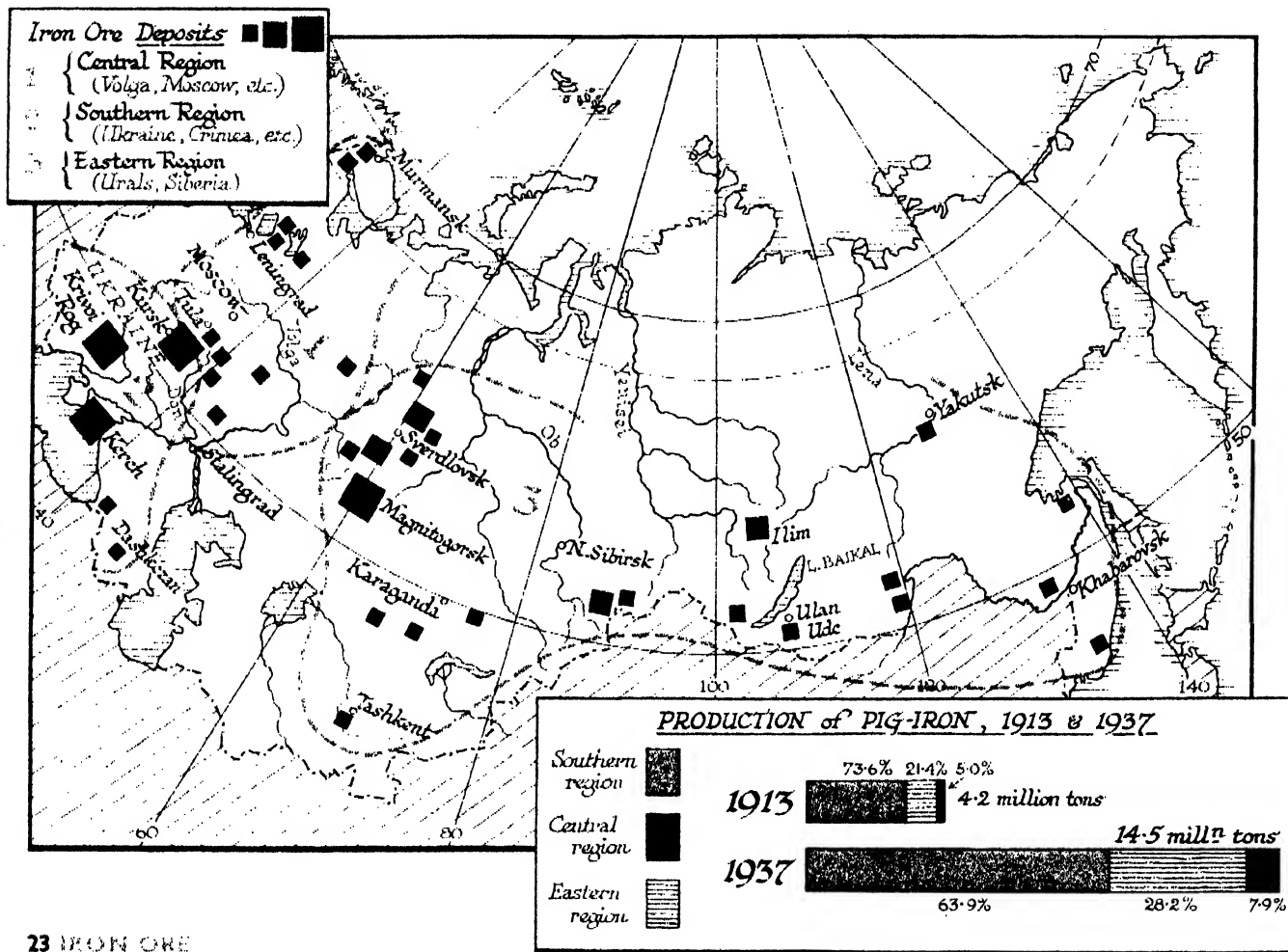
20 COAL AND OIL

The southern part of European Russia (especially the Ukraine-Caucasus-Caspian area) produced nearly 90% of the coal and 97% of the oil in the old Russian Empire. Since the revolution, the large resources of the east have been exploited, and in spite of increased production in the coal mines and oil-wells of European Russia, the proportion of the total output which comes from the Volga-Ural, Siberian, and Asiatic regions is now much greater than in 1913. The establishment of mines and wells in the east has resulted in rapid development of the economy of the native peoples, as well as providing strong industrial bases far from the fighting fronts in time of war. The distribution of the coal and oil producing areas is shown in map 19.



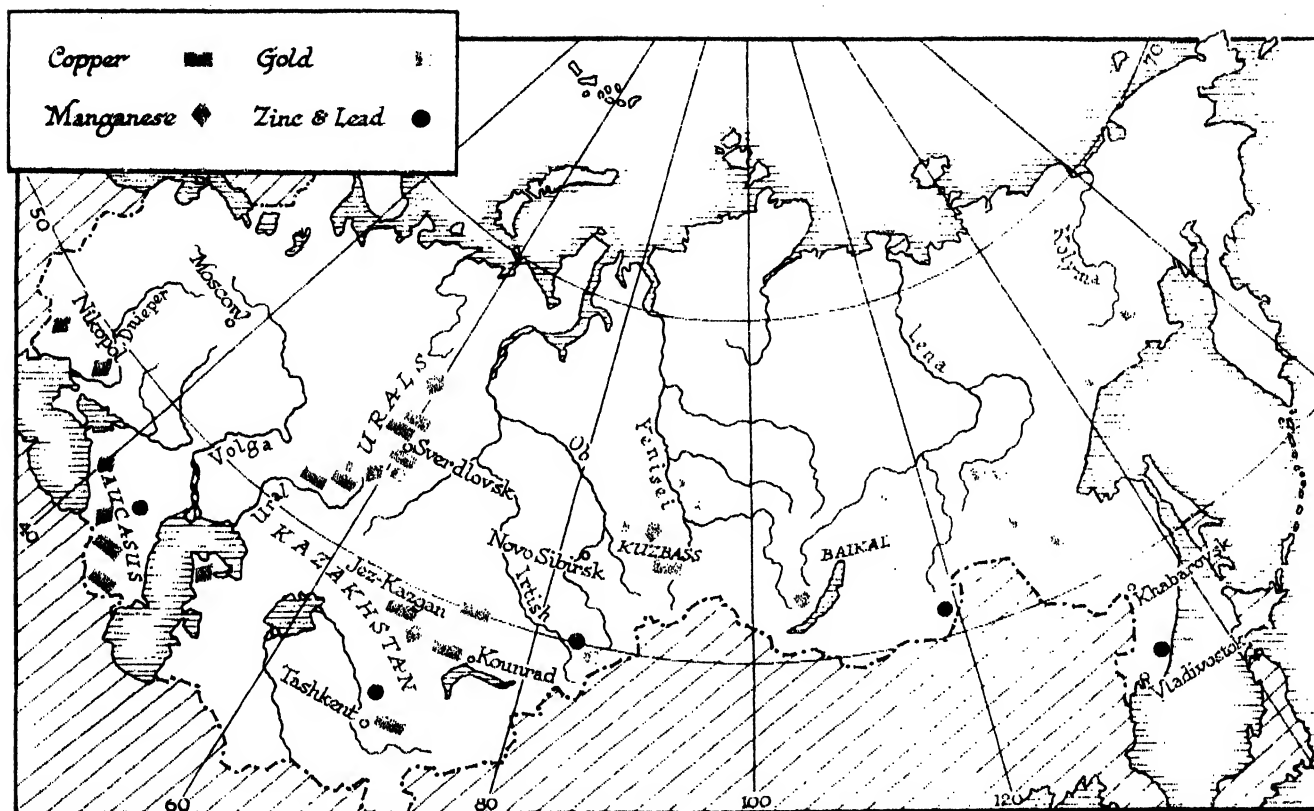
22 ELECTRIC POWER STATIONS

Widespread electrification has been one of the outstanding features of Soviet economy. The output of electric power in 1938 was 39.6 thousand million k.w.h., as compared with 1,945 thousand in 1913. Use is made of almost every available source of power ; low-grade fuels such as lignite (brown coal) in the Moscow Basin, peat and combustible shales, waste from coal mines, uneconomic to use if carried long distances, are employed in power stations close to where the deposits occur. Oil is used in the Caucasus. In 1937, 67.2% of the power from regional stations was generated by local fuel and 14.6% by water power.



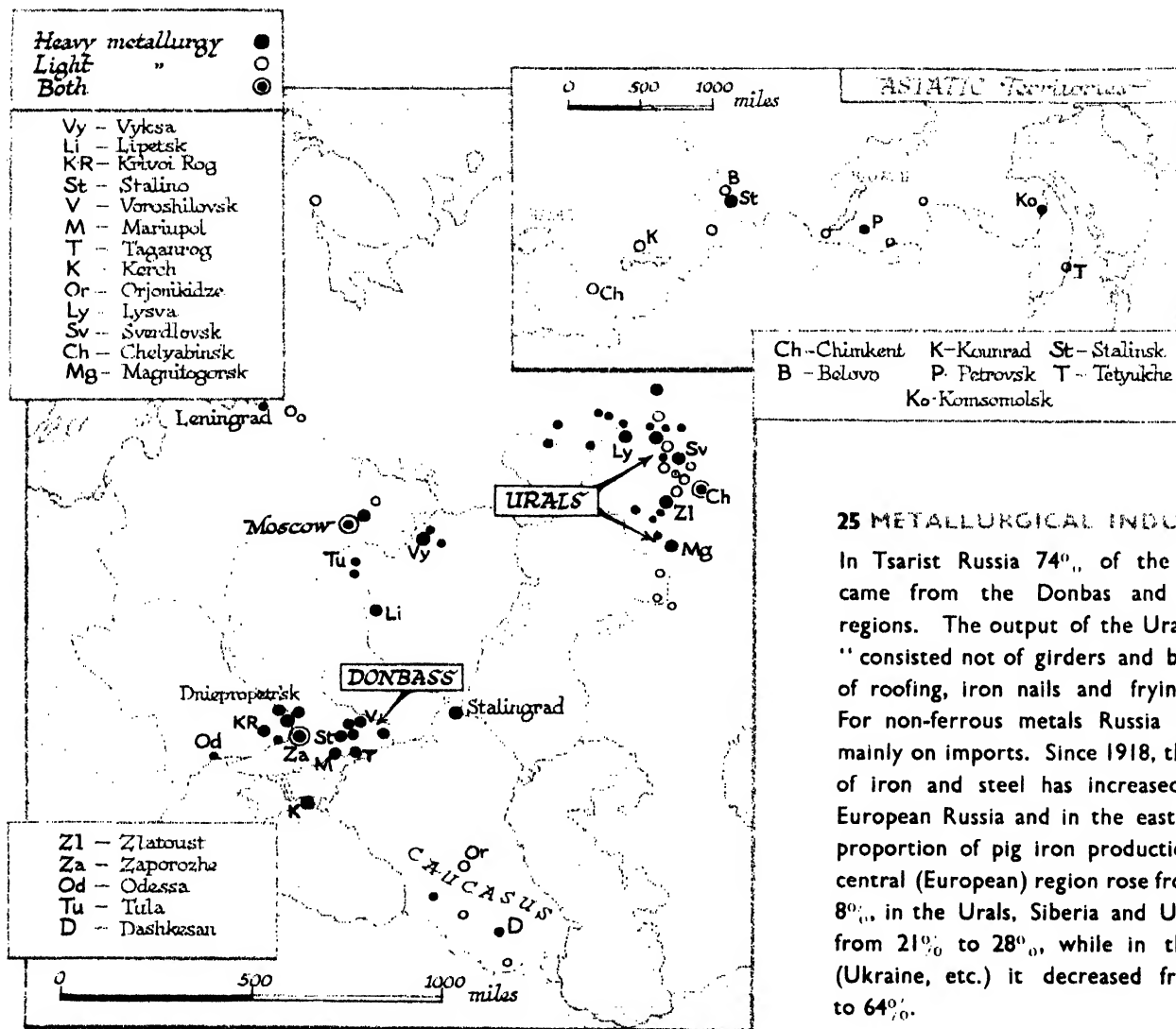
23 IRON ORE

Before the revolution, two-thirds to three-quarters of Russian iron and steel came from the southern part of European Russia. The vast deposits of high-grade iron ore in the Urals and Siberia were practically untouched. The latter regions now constitute the second greatest iron-producing areas of the Soviet Union.



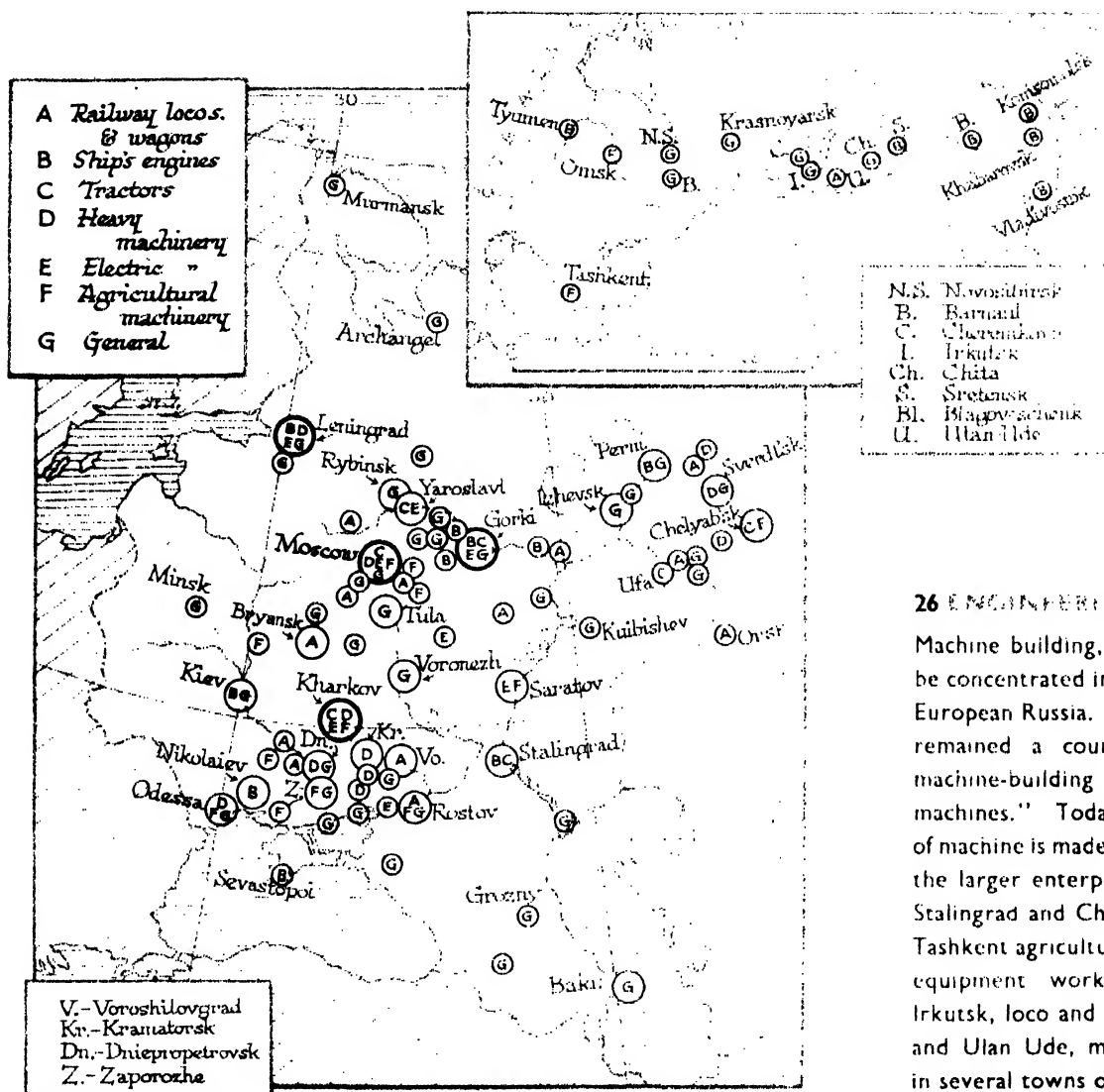
24 NON-FERROUS METALS

Although iron provides the basis for the industrial development of modern nations, non-ferrous metals are essential for the production of high-grade steels and alloys, while for the generation and transmission of electricity large amounts of copper are required. The U.S.S.R. occupies first place in the world in the production of manganese and platinum, third place in the production of aluminium and nickel, and produces about a fifth of the world's chrome ore, as well as relatively large amounts of copper, tungsten, molybdenum etc. The Urals contain almost every metal known to man. Eastern Siberia is rich in gold as well as many other non-ferrous metals.



25 METALLURGICAL INDUSTRIES

In Tsarist Russia 74% of the pig iron came from the Donbas and Dnieper regions. The output of the Urals (21%), "consisted not of girders and beams but of roofing, iron nails and frying pans." For non-ferrous metals Russia depended mainly on imports. Since 1918, the output of iron and steel has increased both in European Russia and in the east, but the proportion of pig iron production in the central (European) region rose from 5% to 8%, in the Urals, Siberia and Uzbekistan from 21% to 28%, while in the south (Ukraine, etc.) it decreased from 74% to 64%.



26 ENGINEERING

Machine building, like metallurgy, used to be concentrated in the Ukraine and central European Russia. "The whole of the east remained a country not only without machine-building but practically without machines." Today practically every type of machine is made in the U.S.S.R. Amongst the larger enterprises in the east are the Stalingrad and Chelyabinsk tractor works, Tashkent agricultural machine works, mine equipment works at Novosibirsk and Irkutsk, loco and wagon works at Stalinsk and Ulan Ude, marine engineering shops in several towns of the Far East.

INDUSTRIAL DEVELOPMENT

Before the revolution, industry was largely concentrated in European Russia—the manufacture of textiles predominating in the Moscow and Ivanovo Regions, and the food, coal mining and metallurgical industries in the south (Ukraine etc.). The central region was settled early in Russian history (see pp. 10 and 25), and as soil and climatic conditions were not sufficiently favourable for agriculture, the people could not obtain a living by farming only. Hence they developed handicraft industries such as the making of homespun linen from local flax, and when factory production was introduced there was a good supply of skilled labour available for textile mills and a large population to purchase their products, while the central position of the region in relation to waterways and later railways was an additional advantage, as it enabled goods to be sent to all parts of Russia and facilitated the import of raw materials from Russia or abroad.

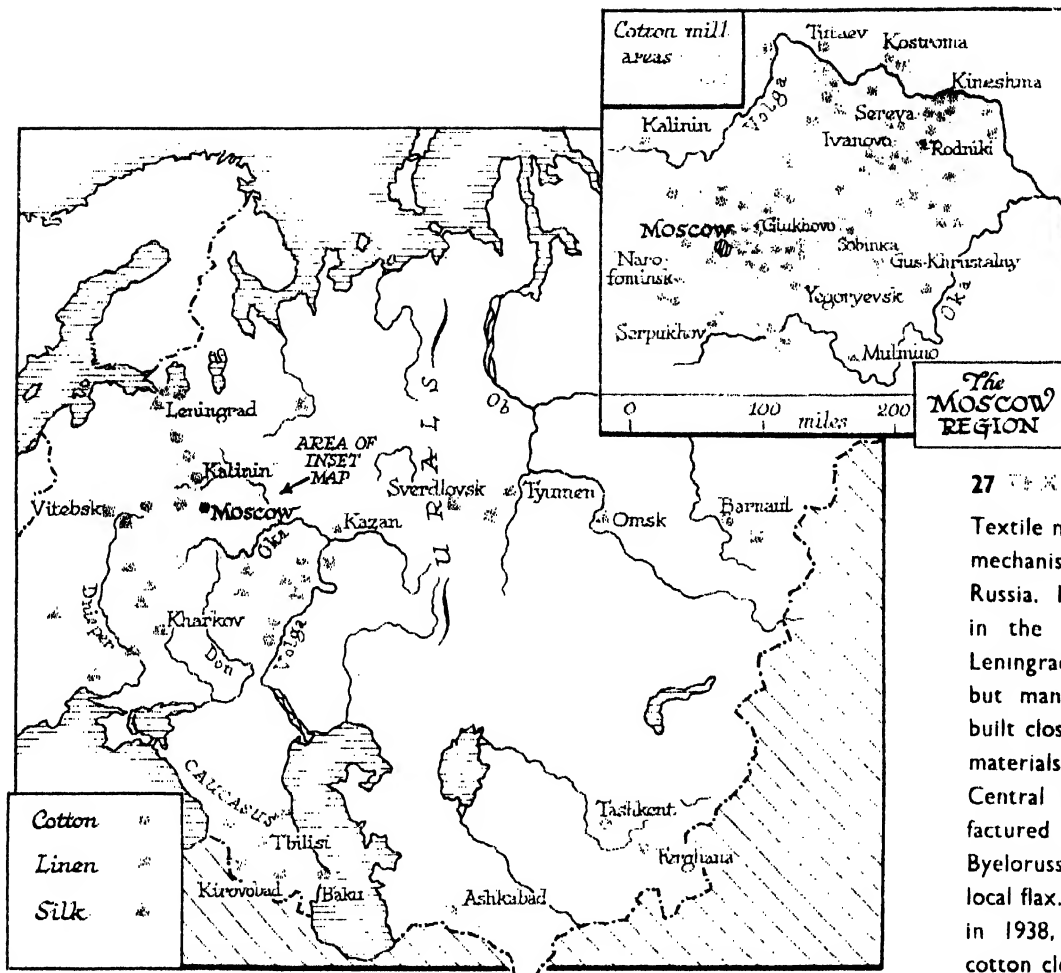
In the south, agriculture provided raw materials for flour milling, beet sugar refining etc., and Donetz coal with Krivoi Rog iron provided the basis for heavy industry. Engineering and other industries developed in Leningrad on account of the ease with which raw materials could be imported by sea, and there was the well-known petroleum industry of the Caucasus. Outside these regions industry was either absent (often deliberately retarded in the "colonial lands" to prevent competition with the industries of European Russia), or was characterised by out-of-date methods (e.g. in the Urals). After

the revolution, geological exploration revealed colossal mineral deposits previously unknown, especially in the Urals and the east. It became obvious that even after restoration and reconstruction the older industrial centres would not suffice to make the U.S.S.R. a strong industrial power. One of the first great new industrial projects to be realised was the Urals-Kuznetsk Combine—the combination of coaling coal from the Kuznetsk region of W. Siberia with Urals metal, in enormous metallurgical-chemical plants in each region. The vast coal reserves of Karaganda and copper resources near Lake Balkash were brought into use; oilfields between the western Urals and the Caspian, deposits of coal and oil in the Pechora basin (N. European Russia), coal, iron and non-ferrous metals in the Irkutsk-Cheremkhovo and other regions of Eastern Siberia and the Far East were opened up. Textile, engineering, and other industries as well as the production of hydro-electric power, coal and metal, were developed in the Caucasus and Soviet Central Asia.

The following table shows the increase in output of certain items of industrial production:

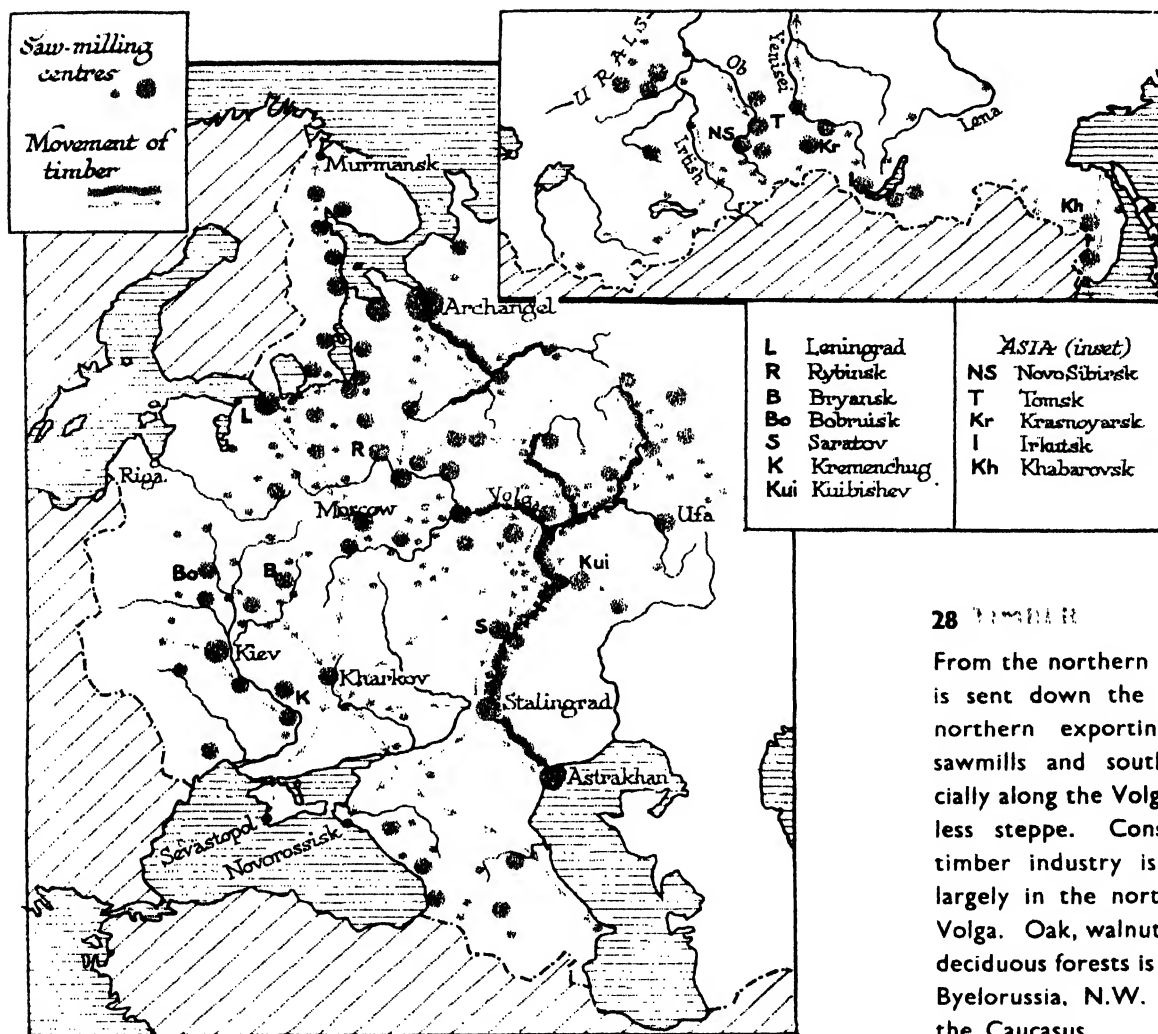
	1913	1938
Coal (million tons)	29.1	132.9
Peat " "	1.7	26.5
Electricity (million kw.h.)	1945	39,600
Iron ore (million tons)	9.2	26.5
Manganese ore (million tons)	1.2	2.7
Chrome ore (million tons)	—	1.0
Pig iron (million tons)	4.2	14.9 ¹
Natural superphosphates		
(million tons)	0.06	1.6
Metal-working lathes (units)	1,500	53,900
Locomotives (units)	418	1,626

¹ 1940



27 TEXTILES

Textile manufacture was the most mechanised industry of Tsarist Russia. Production is still greatest in the Moscow, Ivanovo and Leningrad regions (see page 34), but many new mills have been built closer to the sources of raw materials (e.g. cotton mills in Central Asia). Linen is manufactured in the Ivanovo region, Byelorussia, W. Siberia, etc., using local flax. The U.S.S.R. produced in 1938, 3818 million yards of cotton cloth, 298 million yards of linen, 125 million yards of woollen cloth and 64 million yards of silk.

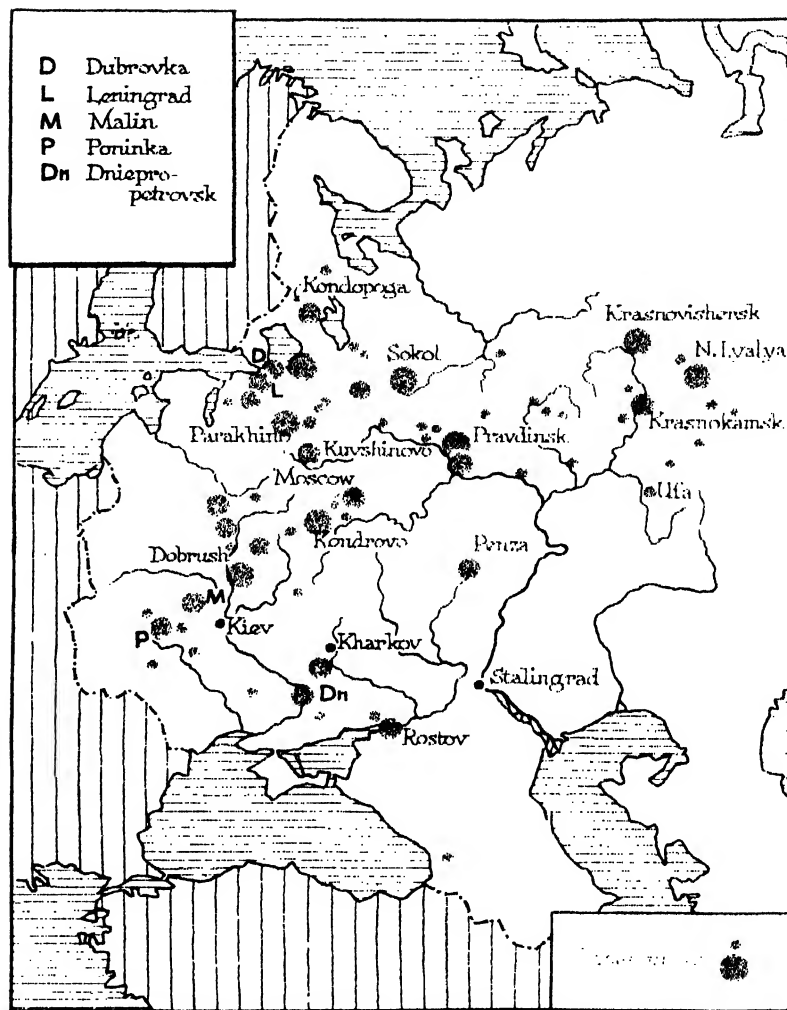


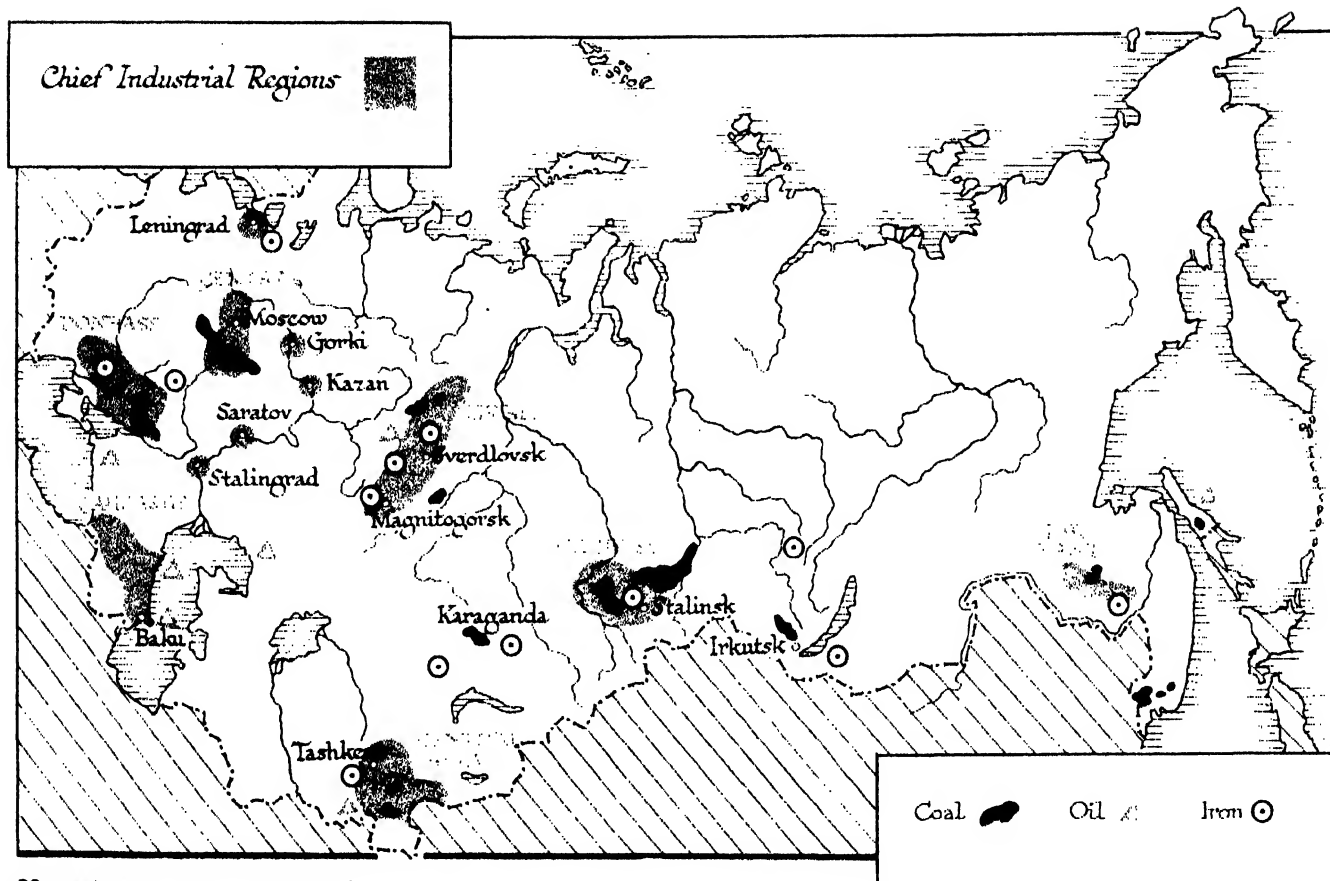
28 TIMBER

From the northern forests timber is sent down the rivers to the northern exporting ports and sawmills and southwards, especially along the Volga, to the treeless steppe. Consequently the timber industry is concentrated largely in the north and on the Volga. Oak, walnut, etc. from the deciduous forests is obtained from Byelorussia, N.W. Ukraine, and the Caucasus.

29 PAPER

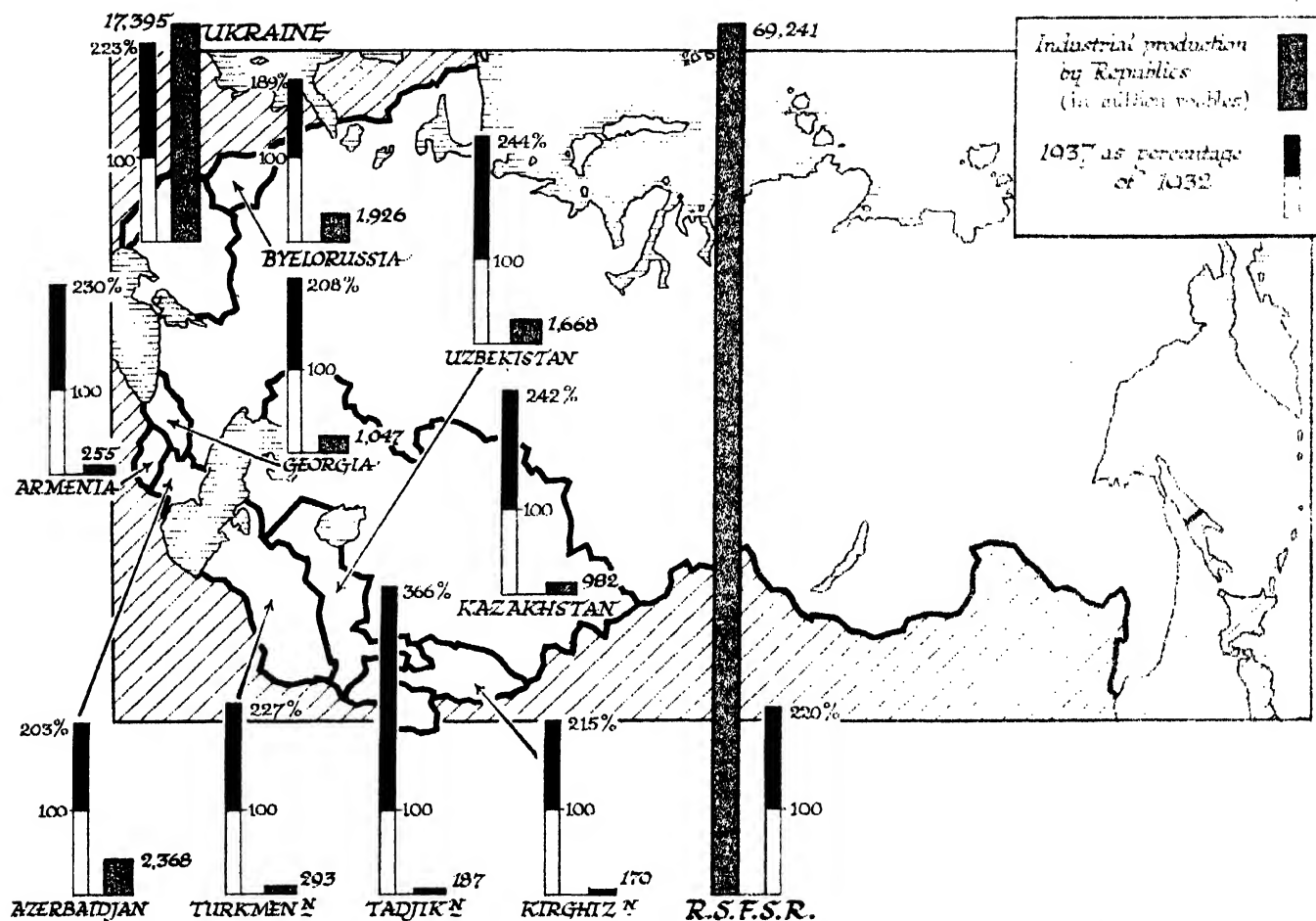
The paper mills are situated close to the sources of raw material (timber), and near the chief consuming centres of European Russia—along the southern edge of the coniferous forest zone, and in the mixed and deciduous forest zone of the west. Saw-milling, paper manufacture, chemical production (e.g. wood alcohol) and cellulose manufacture are often carried on in large "combines." About one half of the paper produced in the U.S.S.R. comes from the northern and north-western parts of European Russia. The largest paper works in Europe is situated at Balakhna, north of Gorki.





30 INDUSTRIAL REGIONS

The origin of the older Leningrad and Moscow regions is described on page 34. The Volga manufacturing towns are favoured by river transport for transporting supplies of raw materials and "exporting" finished products. In the remaining regions industries have grown up near sources of raw materials, especially in the Urals and the east during the last 25 years.



31 INDUSTRIAL DEVELOPMENT IN THE SOVIET REPUBLIC

The most striking feature of the distribution of the industrial production in the Republics is the important position of the Ukraine (the prominence of the R.S.F.S.R. is largely a reflection of its great size). The most notable increase in production has taken place in the Asiatic republics, formerly countries in which handicrafts predominated.

PRODUCTION AND DISTRIBUTION OF INDUSTRIES

One of the most remarkable aspects of Soviet economy has been the transformation of what was primarily an agricultural country into one of the foremost industrial nations of the world during the course of three Five Year Plans (1928-43). The rate of increase of production has been incomparably greater than in any other of the big industrial countries. The *per capita* output, however, had not reached that of countries like Great Britain and the U.S.A., although by 1939 it was apparent that this would have been achieved within the next ten years had not war intervened.

The Soviet Union has greater available resources of hydro-electric power, oil, iron ore (including iron quartzite), manganese ore, potassium salts, apatite and timber than any other country, and occupies second place in respect of reserves of coal and phosphates. The position with regard to resources of power, and industrial production is shown in the tables below, while the *per capita* output is shown in diagram 32.

POWER RESERVES

	Percentage of world total	World position
Coal reserves	15.7	2
Oil ..	32.1	1-2
Forest area	20.0	1
Water power	28.0	1
Peat reserves	48.5	1

POSITION OF U.S.S.R.

in the world:	in Europe:	in production of:
2	1	Total output.
2	1	Machinery.
1	1	Agricultural machinery.
2	1	Tractors (by H.P.).
1	1	Combine-harvesters.
4	3	Cars and lorries.
2	1	Lorries.
2	2	Electricity.
4	3	Coal.
2	1	Iron ore (by iron content).
3	2	Pig iron.
3	2	Steel.
3	2	Aluminium.
3	1	Superphosphates ".
4	3	Cement.
1	1	Sugar.

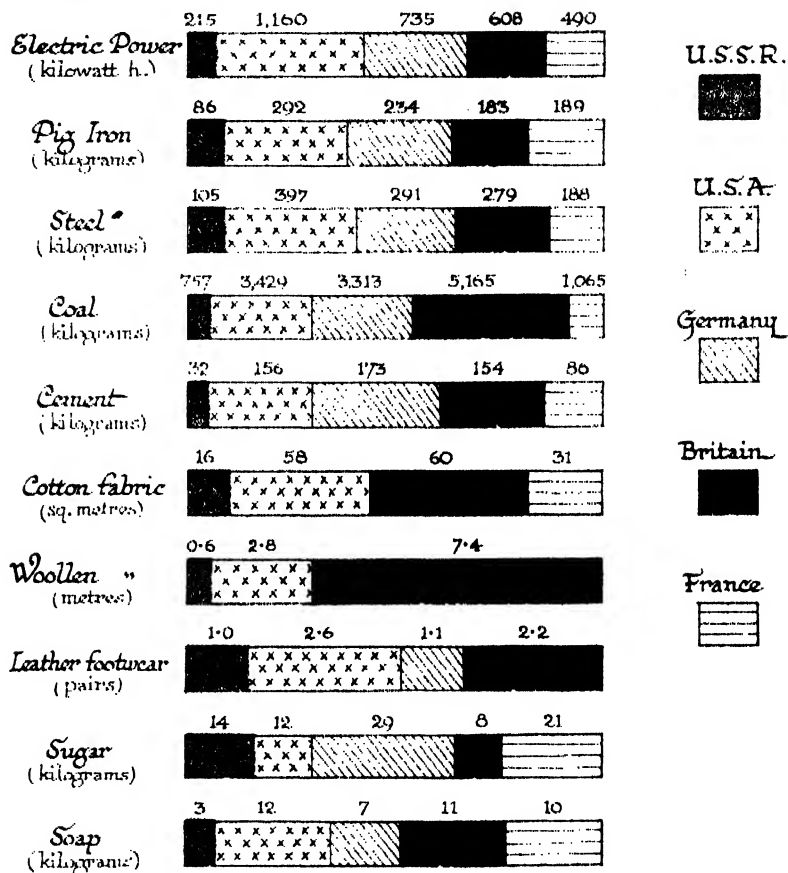
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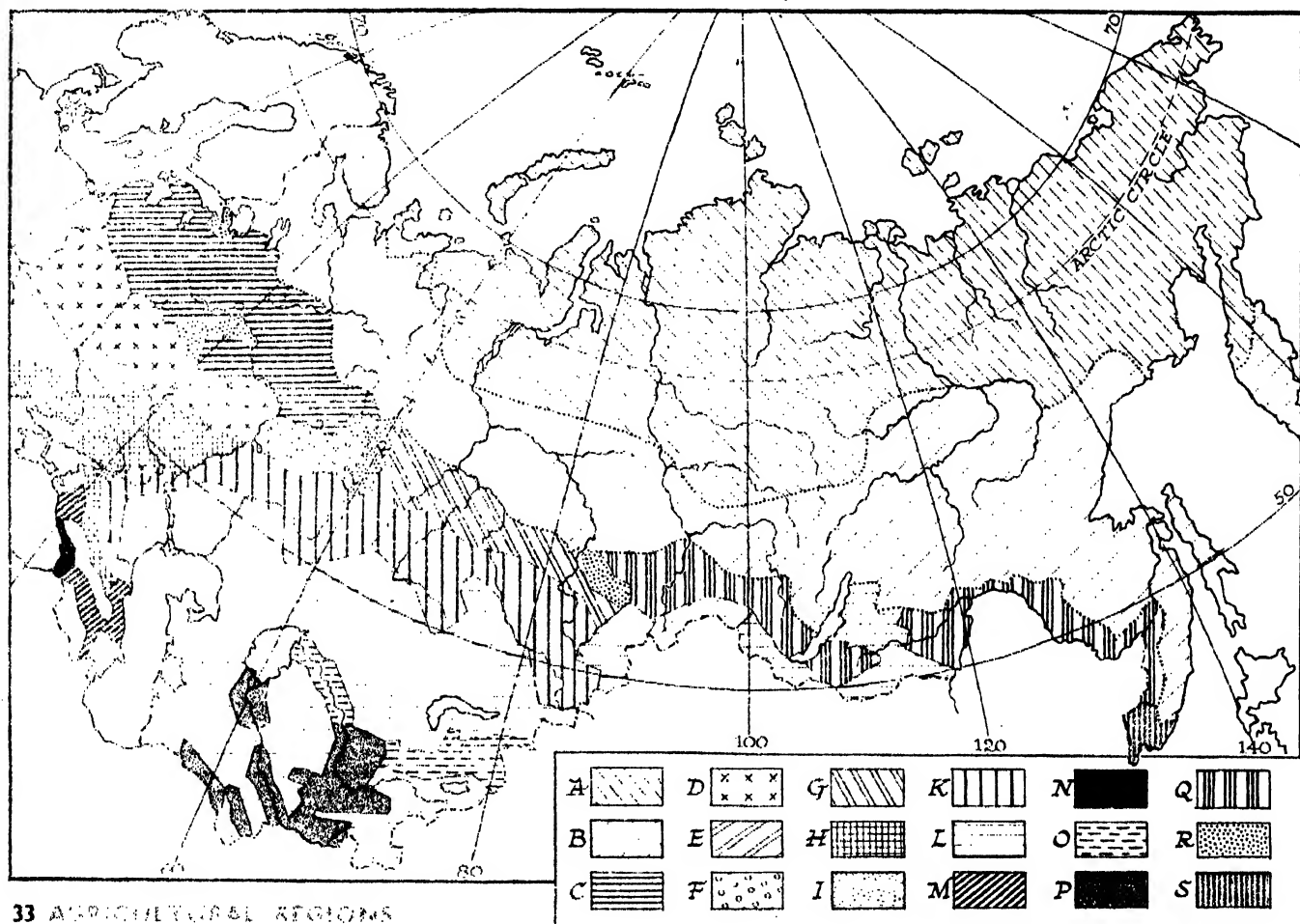
After the enormous expansion of all branches of industry the most outstanding feature has been the more even distribution of industry (see Map 30). There is no longer the same degree of separation of manufacture from the raw materials, and hence the expensive haulage of timber, cotton, coal, iron etc. over long distances has been considerably reduced (see page 56). The republics of the former backward colonial peoples now have their own industrial centres and are no longer regarded simply as sources of cheap raw material.

PRODUCTION per head of population 1937

32 HOW MUCH DOES THE SOVIET CITIZEN PRODUCE?

To inaugurate and consolidate an entirely new economic system, to achieve a revolution in agricultural methods and production and establish a backward agricultural country with an illiterate population as a foremost industrial nation—all in less than twenty-five years—is no mean achievement. But the Soviet people had to commence their task of construction from the very foundations. In spite of the enormously rapid tempo of production and the steady increase in the skill of technicians and workers, the *per capita* output of the Soviet population had not reached that of the chief industrial nations of the rest of the world in 1937.





33 AGRICULTURAL REGIONS

The main areas of production are confined to a broad central zone where there is sufficient warmth and moisture for crop cultivation. Within this area agriculture varies according to local soil and climatic conditions. The key to the map is on page 45.

AGRICULTURAL REGIONS OF THE U.S.S.R.

(Key to Map 33.)

- A. Reindeer breeding.
- B. Hunting, with domestic agriculture and stock-raising.
- C. Flax, dairy zone.
- D. Grain, hemp, potatoes, pigs.
- E. Sugar, beet and grain.
- F. Trans-Volga, wooded steppe grain region.
- G. Dairy, grain, flax zone of Western Siberia.
- H. Grain, sunflower, and intensive stock-rearing.
- I. Grain and cotton.
- K. Grain, stock-raising of meat, milk and wool types.
- L. Predominantly pastoral (mountains and arid areas).
- M. Regions of horticulture, viticulture and tobacco.
- N. Black Sea sub-tropics.
- O. Complex region of industrial crops (sugar beet, southern hemp, etc.) and grain in South Kazakhstan and North Kirghizia, with widespread stock-rearing.
- P. Cotton.
- Q. Grain, with meat, milk, stock-rearing, in Eastern Siberia and Far East.
- R. Chief suburban market garden regions.
- S. Rice, soya, and sugar beet of Far East.

AGRICULTURAL PRODUCTION

Four main trends may be observed in Soviet agriculture :

- (1) An all-round increase in the area under crops—259.5 million acres in 1913, 392.5 million in 1941.
- (2) A relative decrease in the proportion under grain and an increase in the proportion under industrial crops such as sugar beet, flax, cotton etc. (reflecting industrial expansion) as well as that of vegetables and fodder crops. Thus

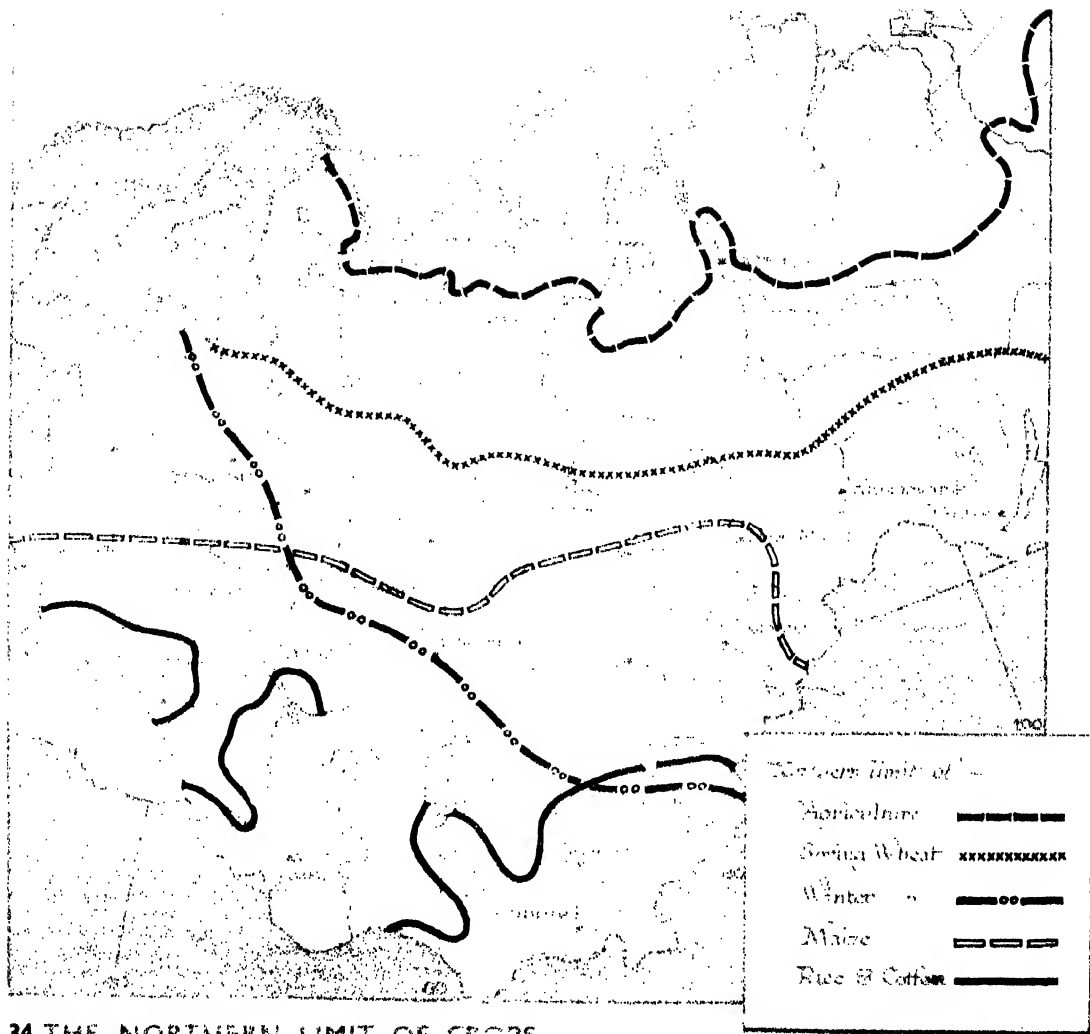
the production of food for the towns and raw materials for the factories has increased.

- (3) A steady increase in the yield of the chief crops, owing to more rational and scientific methods of farming, greater use of fertilizers etc.
- (4) A large increase of the land under crops in the east of the Volga and the Caspian. Because of lack of moisture and lack of labour, the eastern farms are usually very large and highly mechanised.

In the north in spite of severe climate, poor soils, extensive bogs and marshes, progress has been made by the use of frost-resistant, quick-maturing plants, increased application of fertilizers, the draining of bogs. The chief crops are rye, oats, flax, barley and potatoes. Dairy herds are reared on the meadows. The fertile black earth zone, with long warm dry summers has for long been the Russian granary and also produces large crops of sugar beet and sunflower. In the dry eastern steppe special methods of cultivation, the use of drought-resistant plants, and irrigation have successfully overcome the problem of drought in many areas. In 1937, the U.S.S.R. was the largest world-producer of wheat, barley, oats, flax, sugar beet and the third largest producer of cotton (see Map 46). The sub-tropical region of western Transcaucasia is noted for its tea and orange and lemon plantations. The dry steppe zone supports large herds of sheep and cattle.

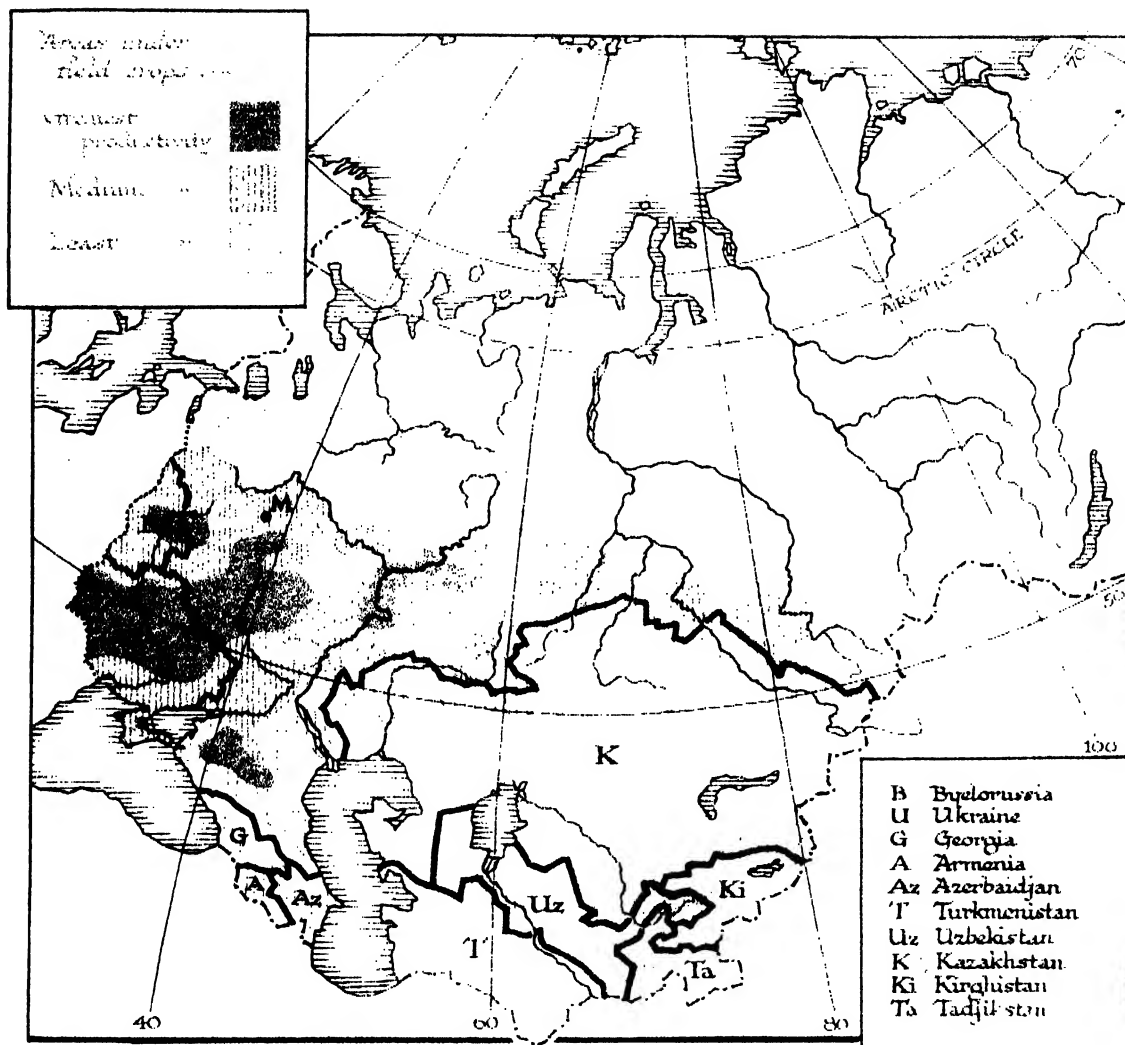
In 1938 there were about 243,000 collective farms, each about 1000 acres in area and nearly 4000 State farms (usually about 10,000 acres). The State farm usually specialises (e.g. in the cultivation of wheat, cotton, tea, market garden crops, or stock rearing) and is owned and operated by the government. The workers receive weekly wages. The collective farm is owned collectively by the people who live and work on it. They manage their farm under a co-operative system of organisation and receive payment in the form of a portion of the harvest, partly in cash, partly in kind, in proportion to the amount of work performed by each person during the past year. Each family also has a small piece of land and some poultry and livestock for private use.

In 1940 more than half a million tractors and about 180,000 combine-harvesters were used on the farms of the U.S.S.R.



34 THE NORTHERN LIMIT OF CROPS

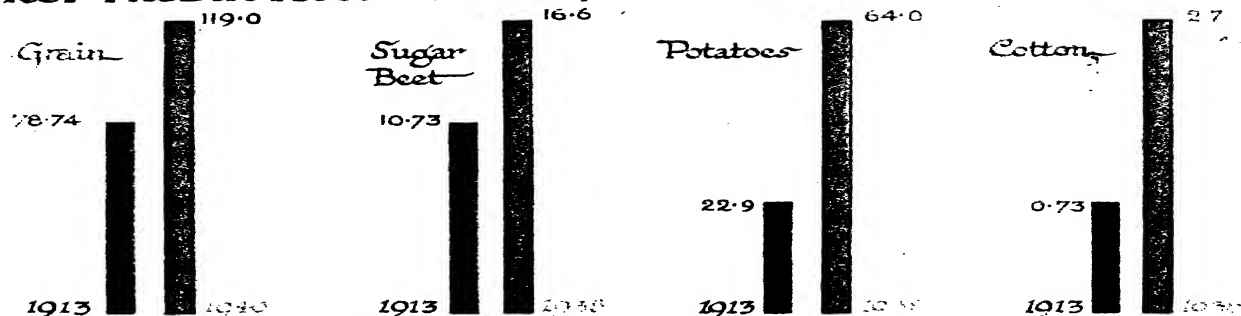
To feed the population of the new industrial settlements, potatoes and vegetables are grown and live-stock reared within the Arctic. The northern limit of wheat has been pushed farther northwards and its production increased in the former "deficit" regions of central European Russia. In the south the "cotton belt" has expanded considerably towards the north.



35 THE DISTRIBUTION OF ARABLE LAND AND FIELD CROPS

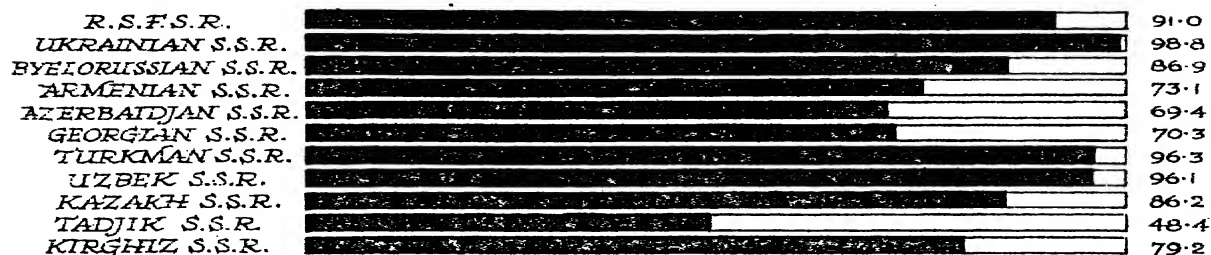
Long warm summers, fertile black soils, and sufficient moisture form the basis of the high degree of productivity in the south of European Russia. In the north, long severe winters, and in the east lack of moisture limit the possibilities of agriculture.

CROP PRODUCTION [million tons]

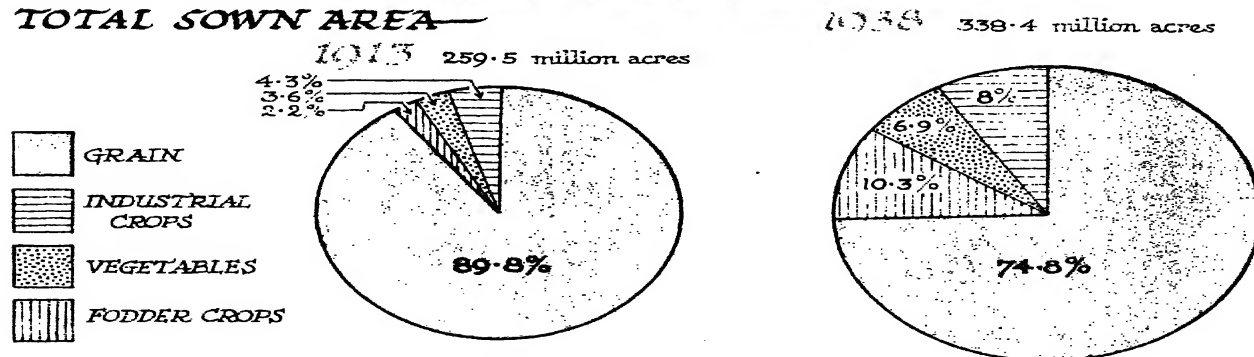


MECHANIZATION OF AGRICULTURE

Percentage of Sown Area served by Machine Tractor Stations (1937)

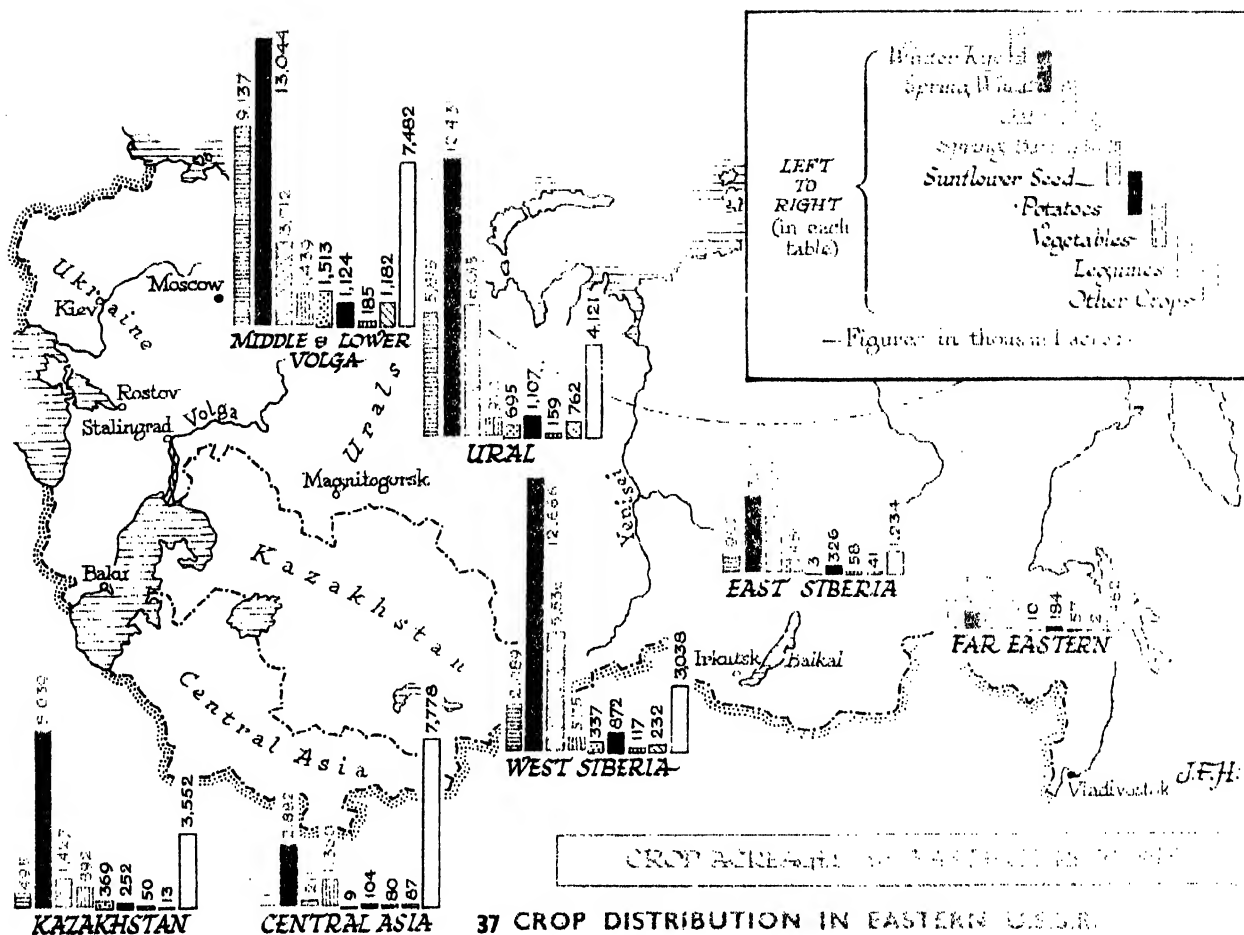


TOTAL SOWN AREA



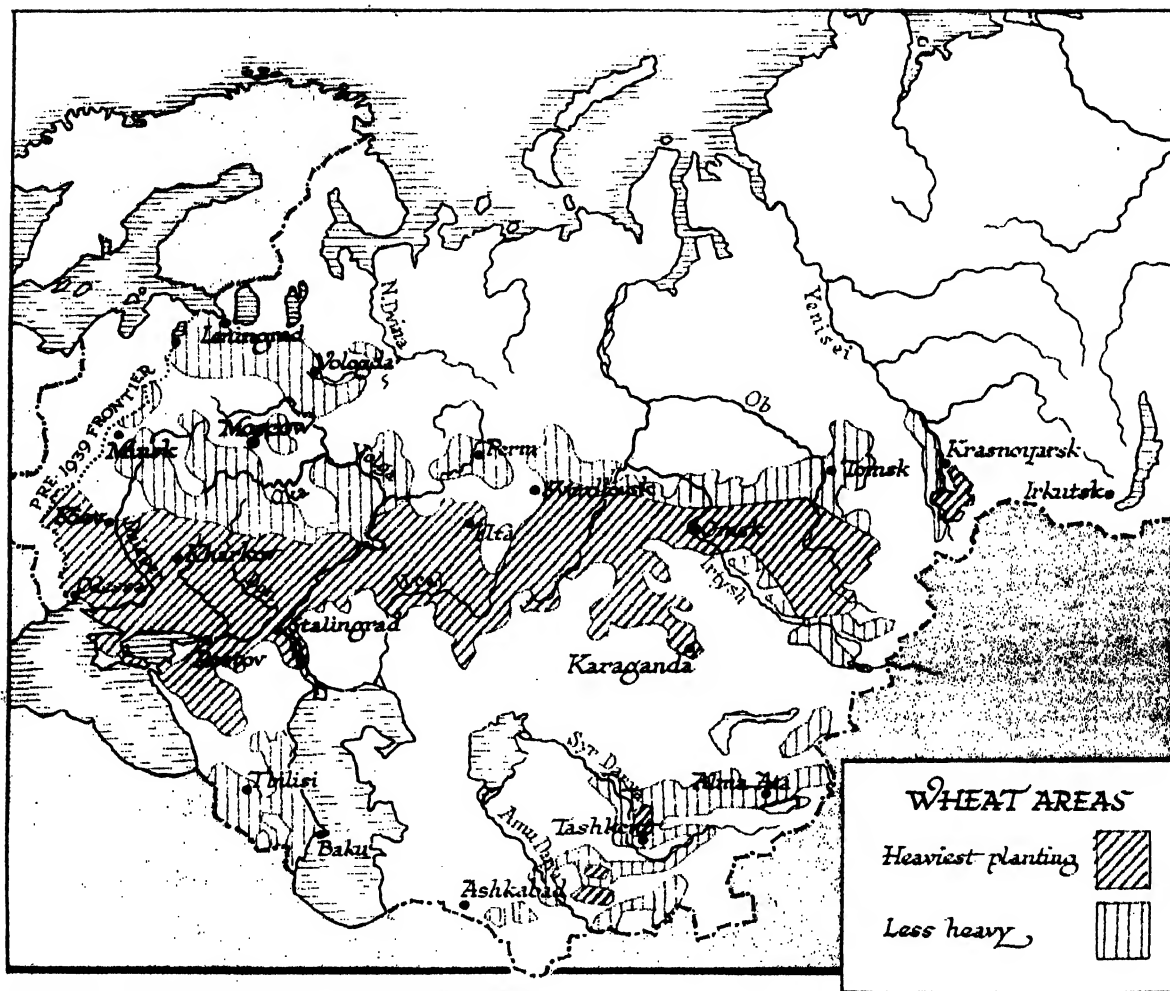
36 DEVELOPMENT OF SOVIET AGRICULTURE

Tsarist agricultural economy was centred largely around grain production for export. By 1938, although the area under all crops had increased considerably, the proportion devoted to vegetable, industrial and fodder crops had risen, while the proportion under grain had fallen. The extent to which agriculture has been mechanised is reflected in the area of arable land served by Machine Tractor Stations.



37 CROP DISTRIBUTION IN EASTERN U.S.S.R.

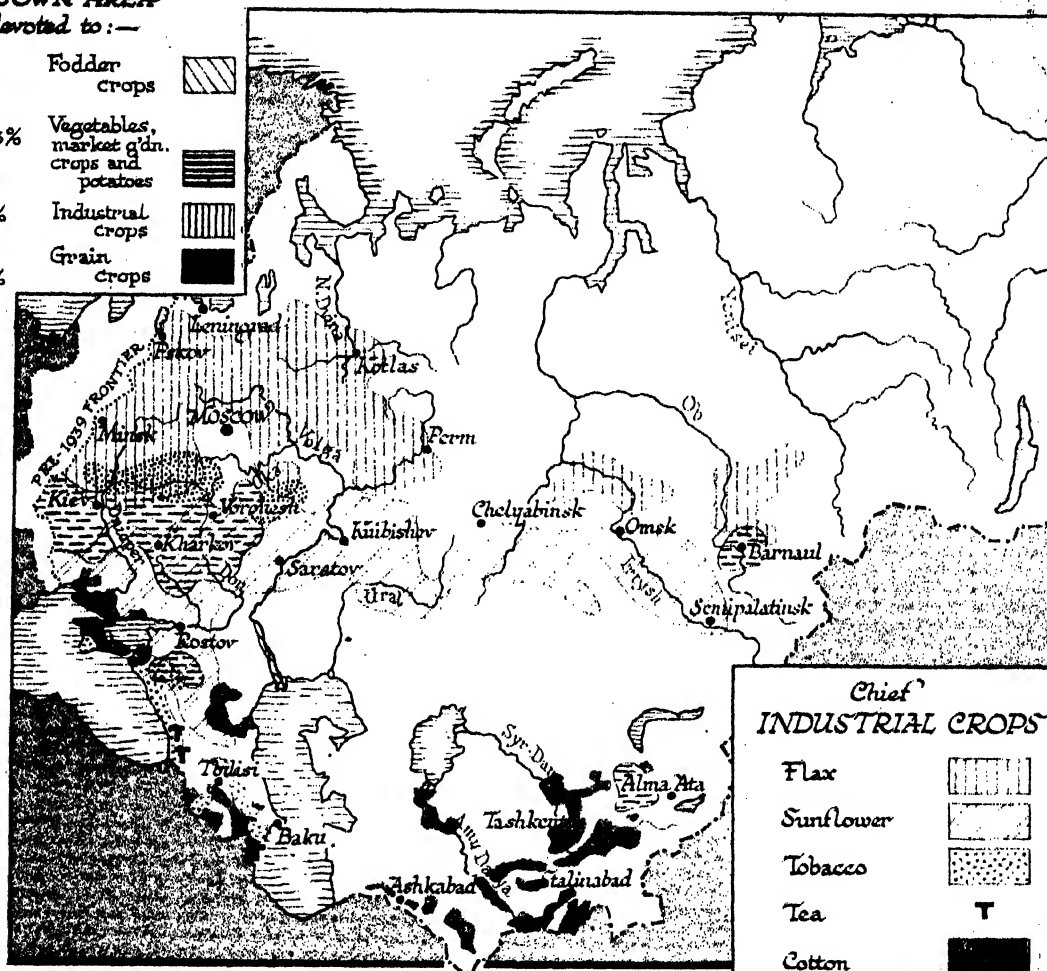
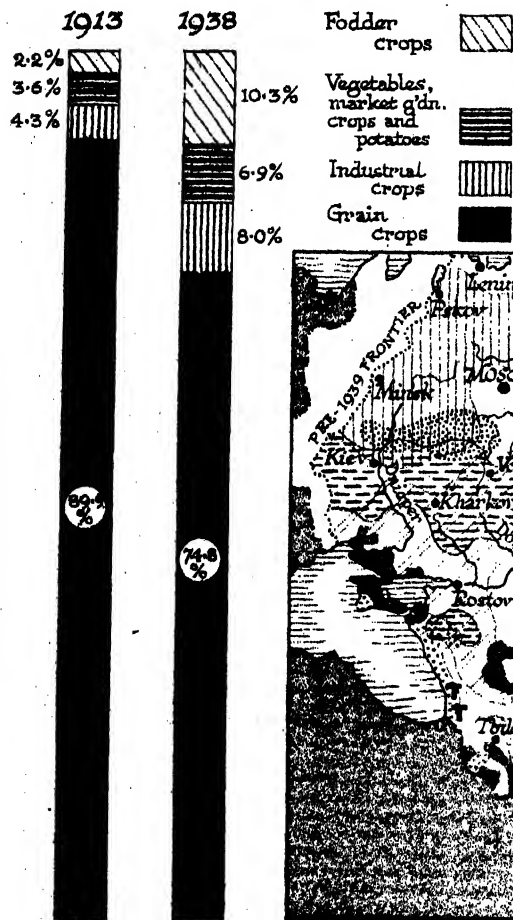
The eastern part of the U.S.S.R. was settled by the Russians later than the western part and has remained relatively thinly populated. Lack of labour, low rainfall and snowfall, and the long severe winters have tended to retard agriculture. In Siberia and the Trans-Volga, large and highly mechanised grain and cattle farms now predominate. In 1939, nearly half the cattle, sheep and goats of the U.S.S.R. were reared in the eastern regions, and about 80% of all the spring wheat was grown in the North Caucasus and the eastern regions together. Cotton is the most important crop in Central Asia.



38 THE CULTIVATION OF WHEAT

The black earth zone has always been the main area of wheat production on account of the fertile soils, moderate rainfall and long dry summers. In recent years there has been a significant increase of the area devoted to wheat outside this zone.

Percentage of TOTAL SOWN AREA
devoted to:—

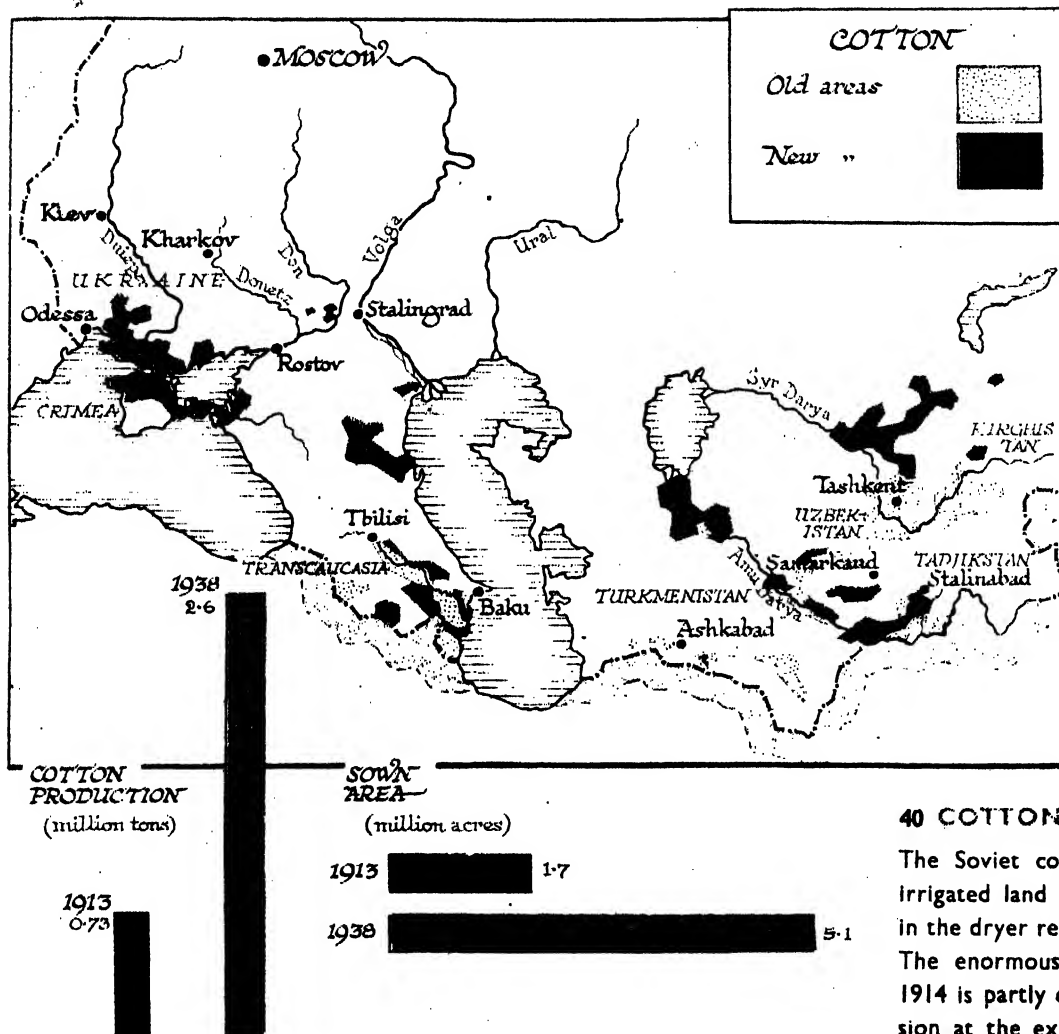


Chief
INDUSTRIAL CROPS

Flax	
Sunflower	
Tobacco	
Tea	T
Cotton	
Hemp	
Beet	

39 INDUSTRIAL CROPS

Flax is grown chiefly in the cool damp northern regions, sunflower in the warm dry south. Hemp and sugar beet occupy intermediate positions. Cotton, tea and tobacco are confined to the warmest areas in the extreme south.

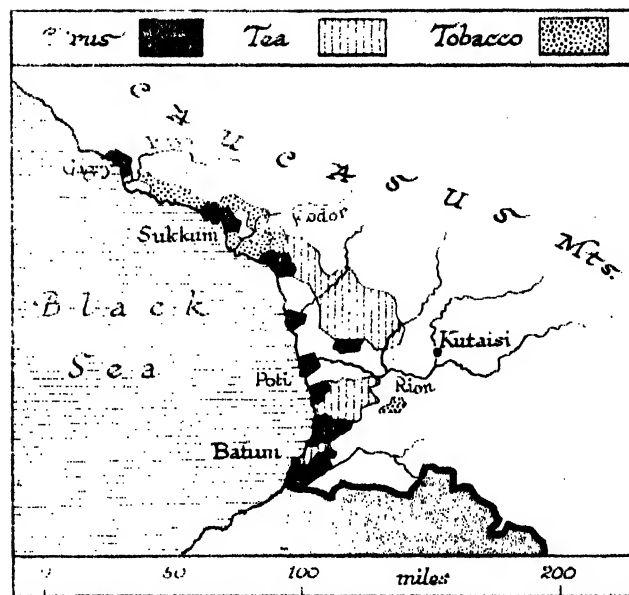


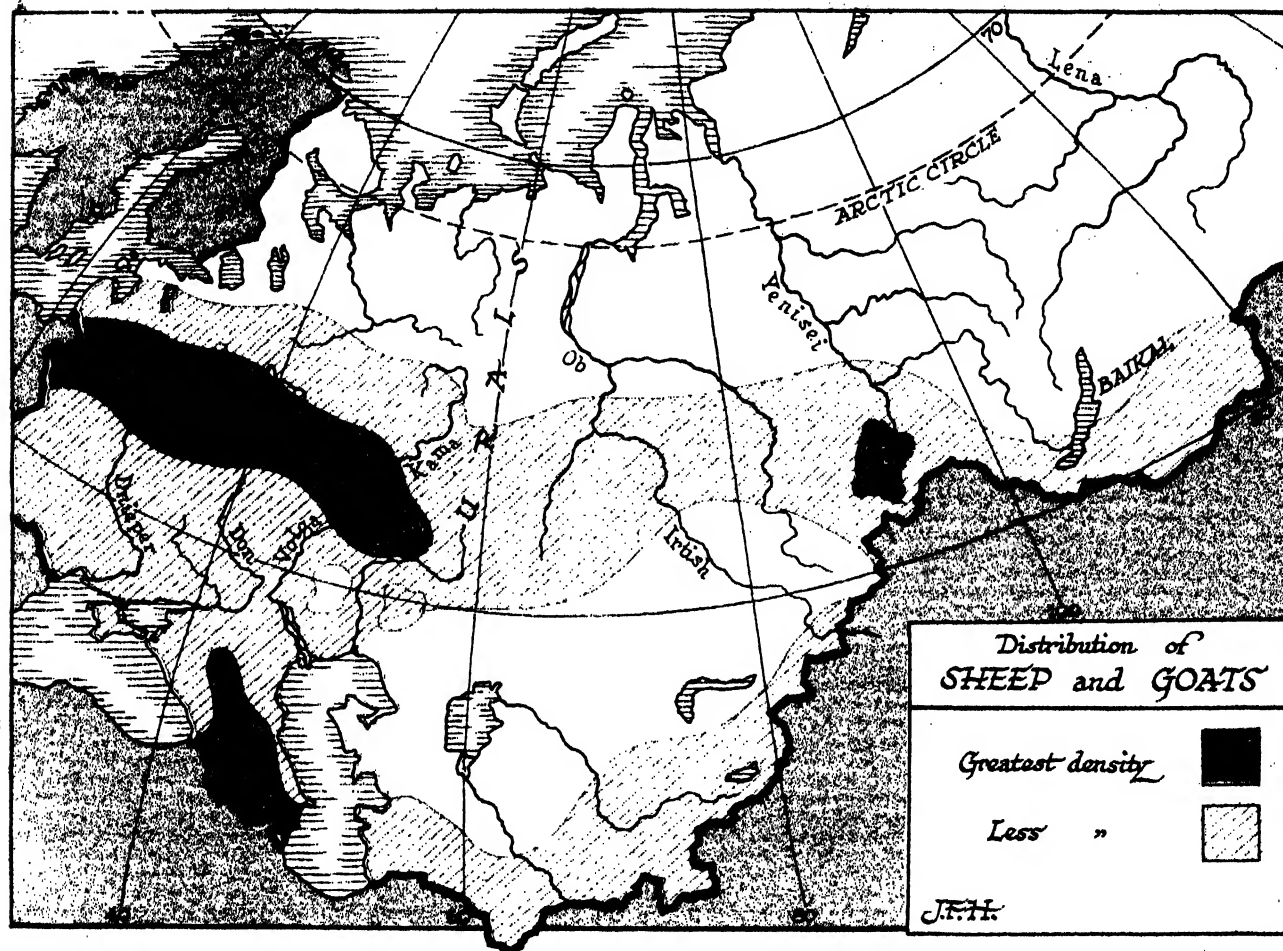
40 COTTON

The Soviet cotton crop is grown on irrigated land (except in the Ukraine) in the dryer regions of the warm south. The enormous increase in area since 1914 is partly due to northward expansion at the expense of rice and wheat.

41 THE HUMID SUBTROPICS

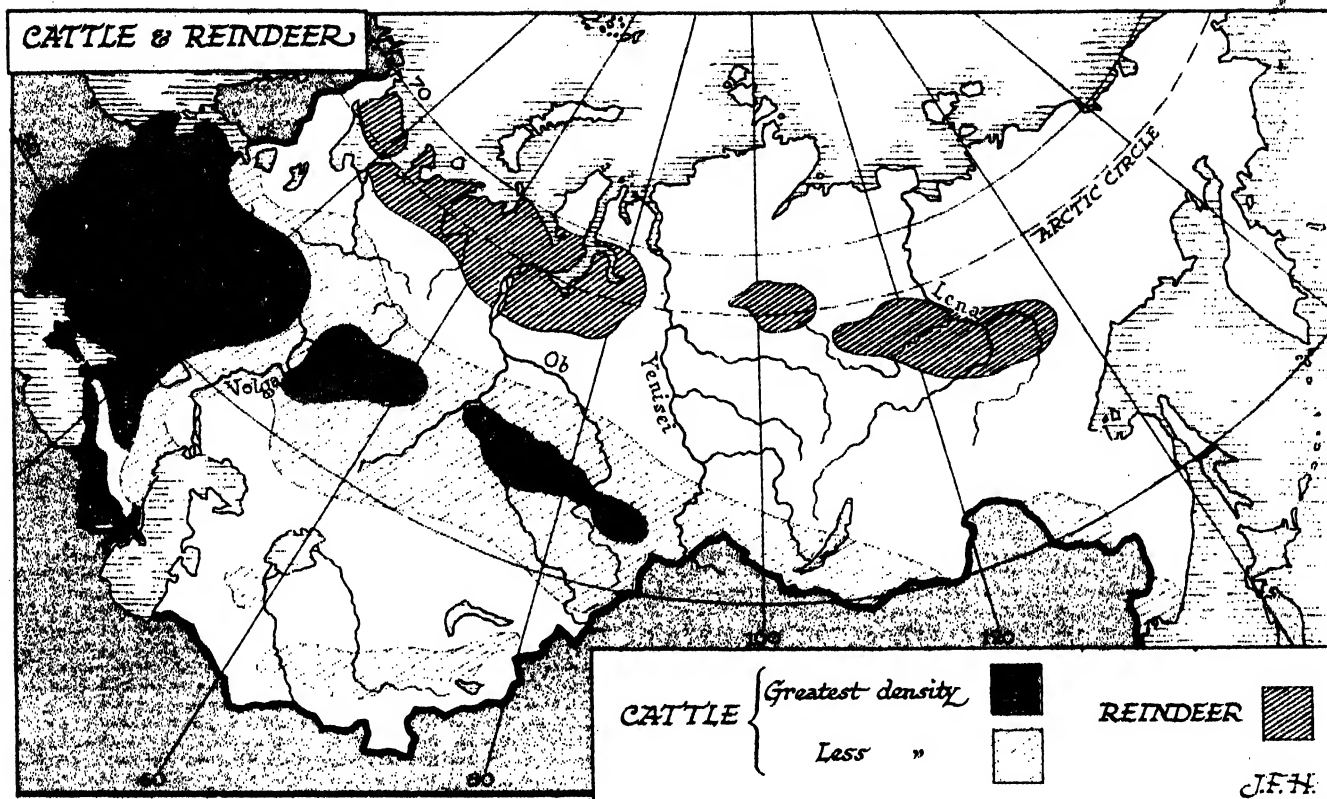
The eastern coast of the Black Sea is situated in a warm southerly latitude, and is protected by the Caucasus from cold north and east winds, while receiving mild moist winds from the Black Sea. The summers are long and hot, the winters short and mild. There is a heavy rainfall (over 40 inches). The region lies close to the northern limit for subtropical crops but scientific methods of cultivation, plant selection, etc. have made possible the cultivation of oranges and lemons on the lower land and the establishment of flourishing tea plantations on the hillsides. In 1939, 125,000 acres of land were devoted to tea in the U.S.S.R. In the previous year 6,400 tons of finished tea were produced in the factories of Georgia and Azerbaijan. About 50,000 acres of citrus plantations were cultivated in 1940, yielding 325 million citrus fruits. The tung tree (producing a valuable oil), geranium, pomegranate, eucalyptus, camphor and quinine are also cultivated.





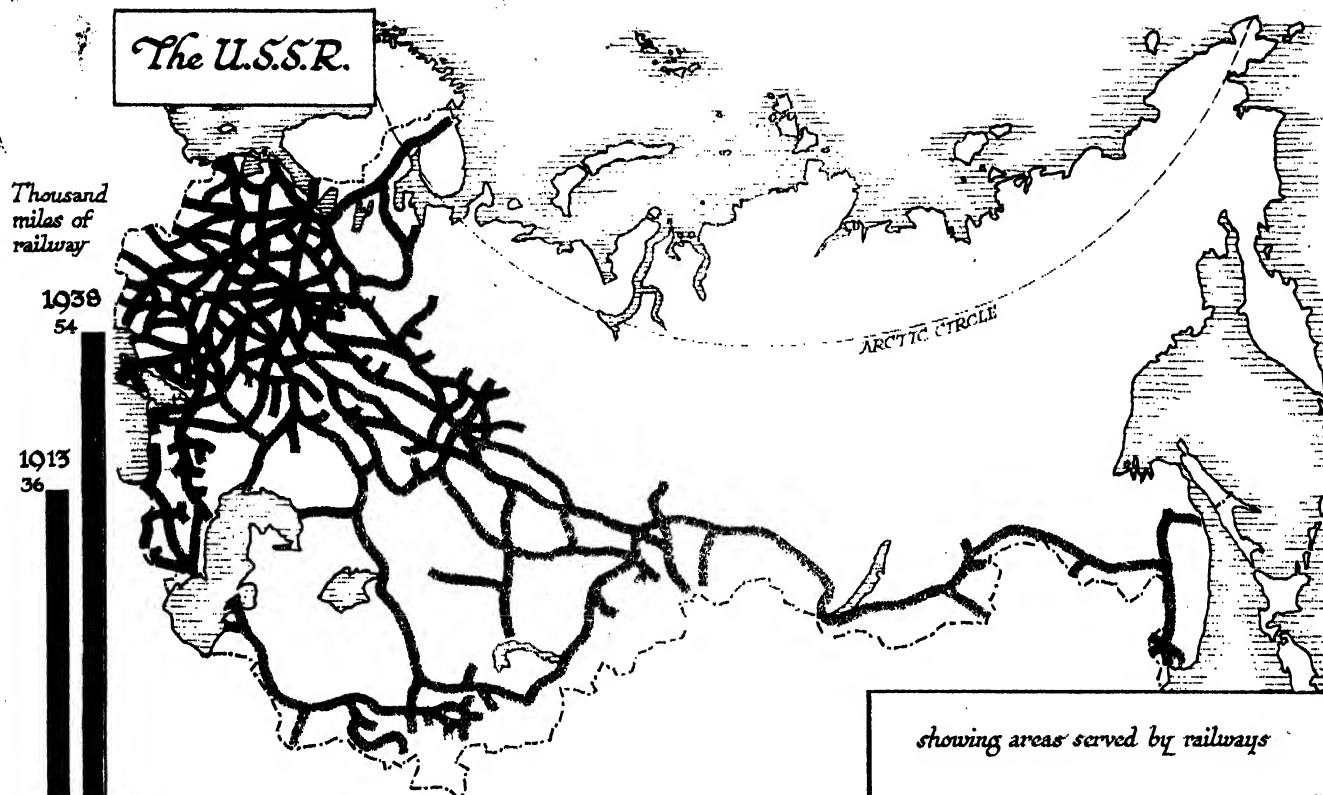
42 DISTRIBUTION OF SHEEP AND GOATS

In 1938 there were more than 103 million sheep and goats in the U.S.S.R. Sheep-rearing for wool production is most important in Kazakhstan, Central Asia, Siberia and the Caucasus, on dry steppe or mountain pastures. More than half the sheep are reared in the middle and lower Volga lands, and to the east of the Volga.



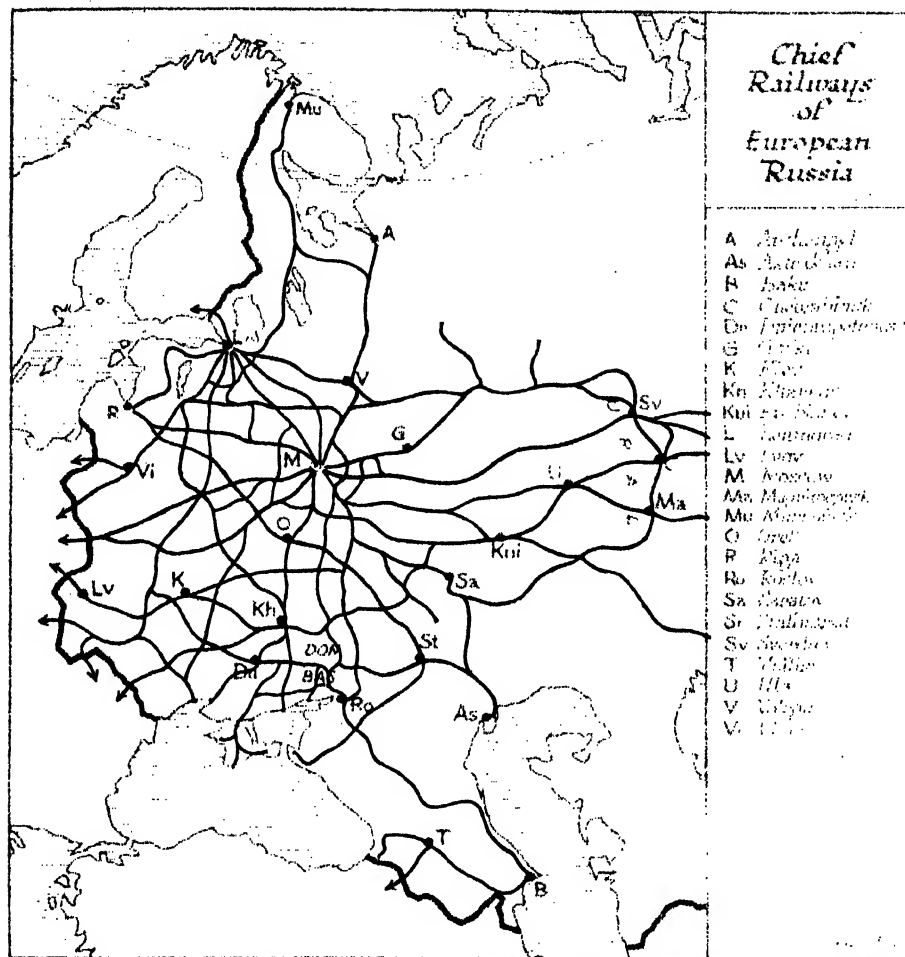
43 DISTRIBUTION OF CATTLE AND REINDEER

There were more than 63 million head of cattle in the Soviet Union in 1938. In the dry steep lands of the lower Volga, Kazakhstan and Central Asia, natural grass constitutes the greater part of the fodder, and although large numbers are reared, they are spread out rather thinly over large areas. In Southern Siberia and the deciduous forest zone of European Russia, meadows and sown grasses are used, while in the Black Earth region of the Ukraine, cattle are fed on grain, potatoes, sugar beet waste, etc., since most of the land is cultivated and little is available for pasture. In the Far North, reindeer form an important source of meat—now supplemented by cattle in Yakutia.



44 SOVIET RAILWAYS

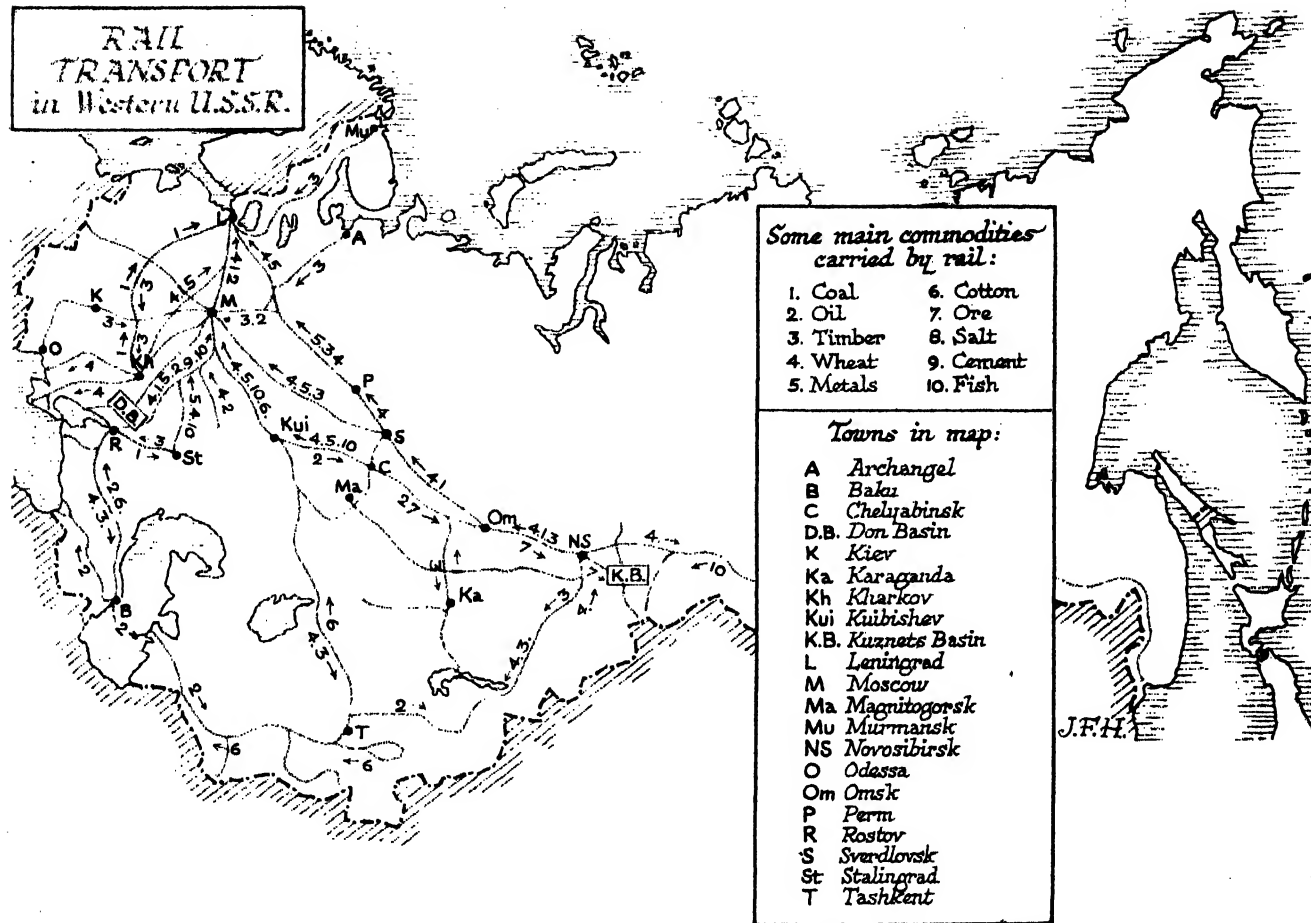
In spite of the construction of thousands of miles of new railways since 1918, there are still large areas of the U.S.S.R., especially in the Far North and Siberia, with few or no railways. This has been overcome to some extent by using the great rivers and building roads. Nevertheless in 1937 Soviet railways were carrying about four times more freight per mile of track than British railways.



45 RAILWAYS IN EUROPEAN RUSSIA

European Russia is relatively well served by railways. Two "hubs" or focal points or rail routes may be observed—at Leningrad and Moscow, the chief centres for foreign and internal trade and commerce. The centre and south have a good system of north-south and east-west lines. But the eastern part (the Volga lands) is crossed by trunk lines between Europe and Asia, while there is a notable absence of north-south routes.

RAIL TRANSPORT in Western U.S.S.R.

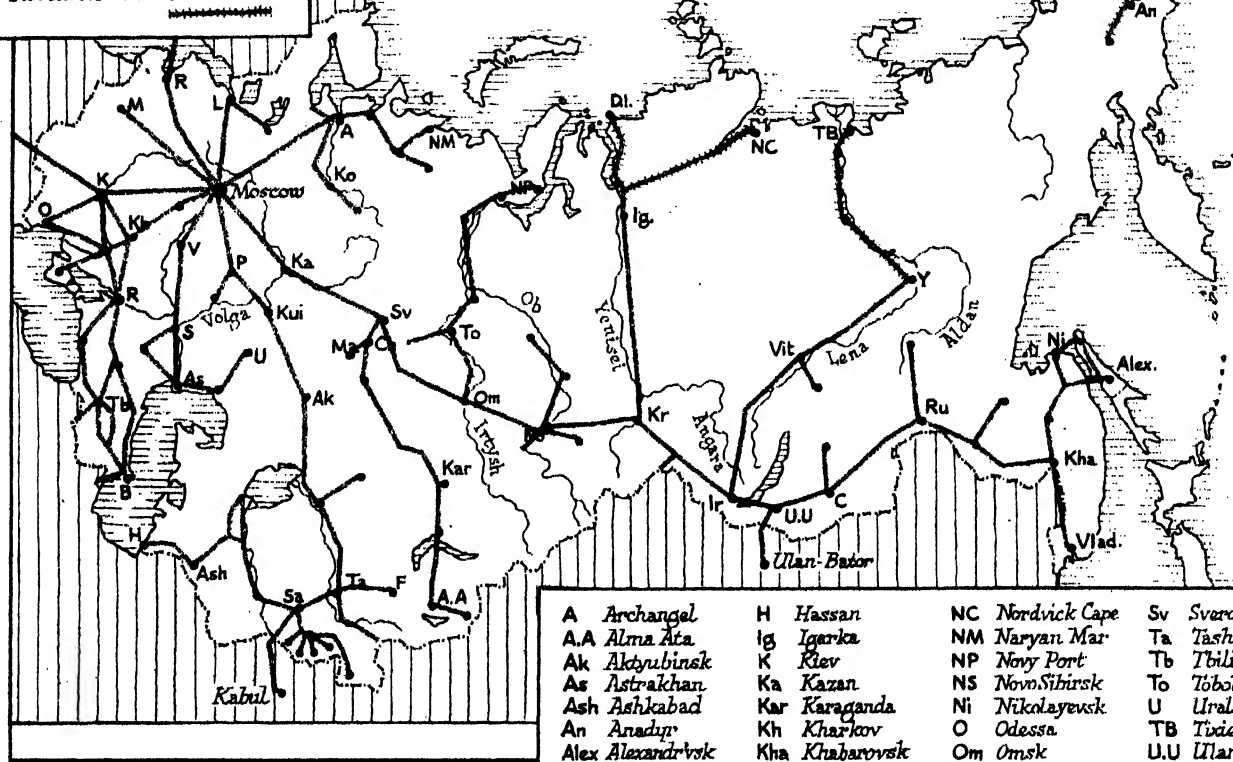


46 FREIGHT TRANSPORT ON SOVIET RAILWAYS

One of the biggest problems of Soviet economy has been how to reduce expensive long-distance haulage of heavy bulky raw materials such as coal, timber, wheat, etc. This has been partially solved by the opening up of new producing areas, e.g. reducing the dependency of industry upon Donetz coal and metal, and the increased utilisation of local raw materials.

Civil Air Lines —————
(freight, mail, or passenger)

*Air Lines of Administration,
Northern Sea Route* ~~~~~~



A Archangel	H Hassan	NC Nordvick Cape	Sv Sverdlovsk
A.A Alma Ata	Ig Igarka	NM Naryan Mar	Ta Tashkent
Ak Aktyubinsk	K Kiev	NP Novy Port	Tb Tbilisi
As Astrakhan	Ka Kazan	NS Novosibirsk	To Tobolsk
Ash Ashkabad	Kar Karaganda	Ni Nikolayevsk	U Ural'sk
An Anadyr	Kh Khar'kov	O Odessa	TB Tixie Bay
Alex Alexandrovsk	Kha Khabarovsk	Om Omsk	U.U Ulan Ude
B Baku	Kr Krasnoyarsk	P Penza	V Vornmesh
C Chita	Kui Kuibishav	R Rostov	Vit Vitim
Ch Chelyabinsk	L Leningrad	Ru Rukhlovo	Vlad Vladivostok
D.I. Dickson Is.	M Minsk	S Stalingrad	Y Yakutsk
F Frunze	Ma Magnitog'sk	Sa Samarkand	

47 SOVIET AIRWAYS

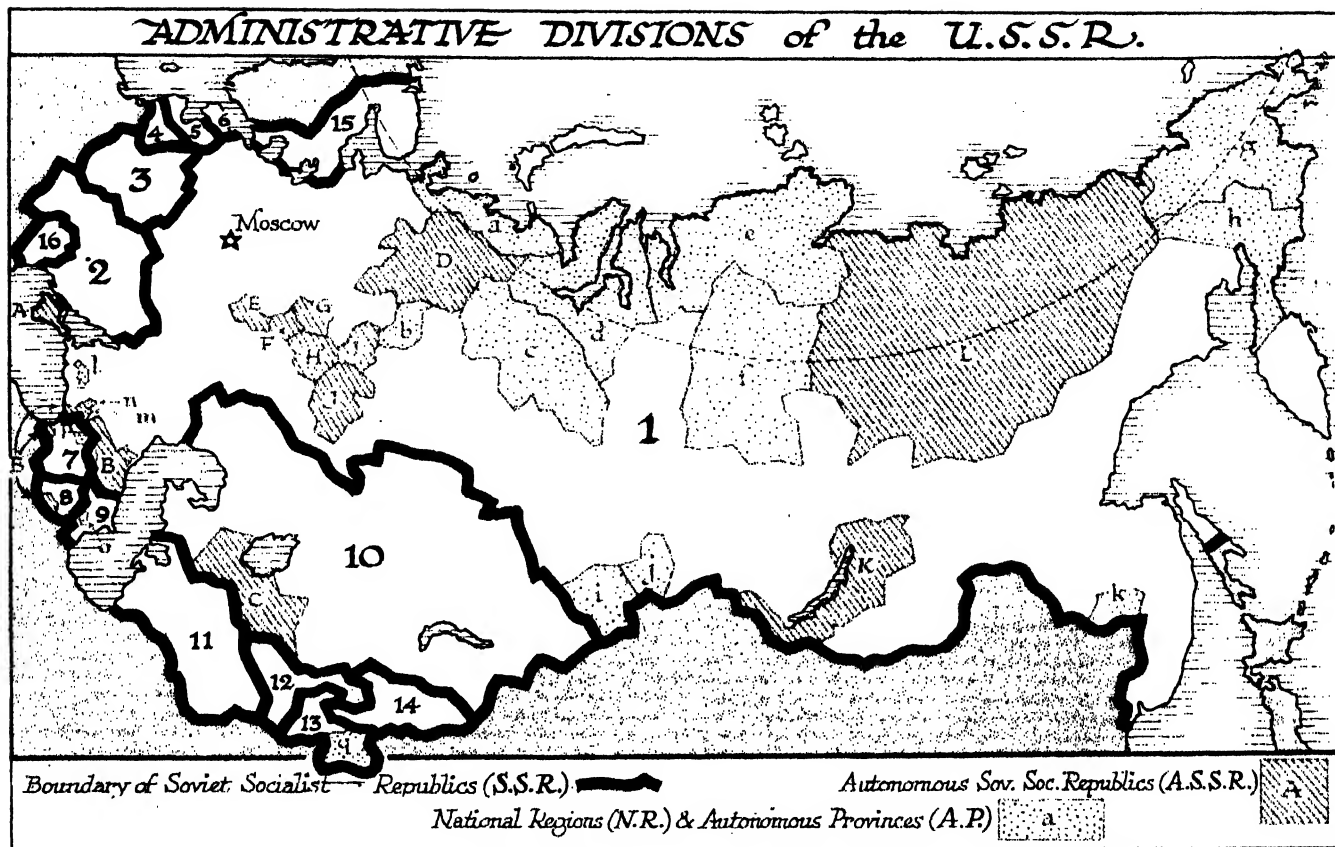
The absence of great mountain barriers throughout much of the territory of the U.S.S.R. and the absence of considerable climatic variations in summer and winter are factors which favour aviation. In a land territory of such great size, with

large roadless and rail-less areas, airlines are of the greatest importance for the transport of passengers, newspapers and mail, the introduction of modern culture and civilization to remote areas and transport of sick persons to hospital, etc. Over 88,000 miles of airways were in operation in 1940.

RAILWAYS, WATERWAYS AND AIRWAYS

In a country like England where a journey of 400 miles is considered long, it is difficult to appreciate the problem of transport in a country which measures 6000 miles from east to west and in some parts 4000 miles from north to south—a country where it is possible to spend nearly a fortnight travelling in a train. Only the Ukraine has a network of railways of similar density to that of most West European countries. Until recently the whole of Siberia possessed only one main line railway, the Trans-Siberian. Since 1918 this line has been double-tracked and the mileage of the entire Soviet railway system increased from about 37 to 63 thousand miles. More than 1,300 miles of new railways were constructed in the Ukraine, over 2,000 miles in Kazakhstan, and 600 miles in Byelorussia up to 1936. In the northern part of European Russia, the North Pechora Railway has been completed, while in the Far East it is probable that a new northern line of the Trans-Siberian has been completed, running to the north of Lake Baikal, through Southern Yakutia to the Pacific coast at Soviet Haven. But whereas the mileage has increased by more than sixty per cent. the freight load in 1940 was more than four times as great as in 1913, and was four or five times

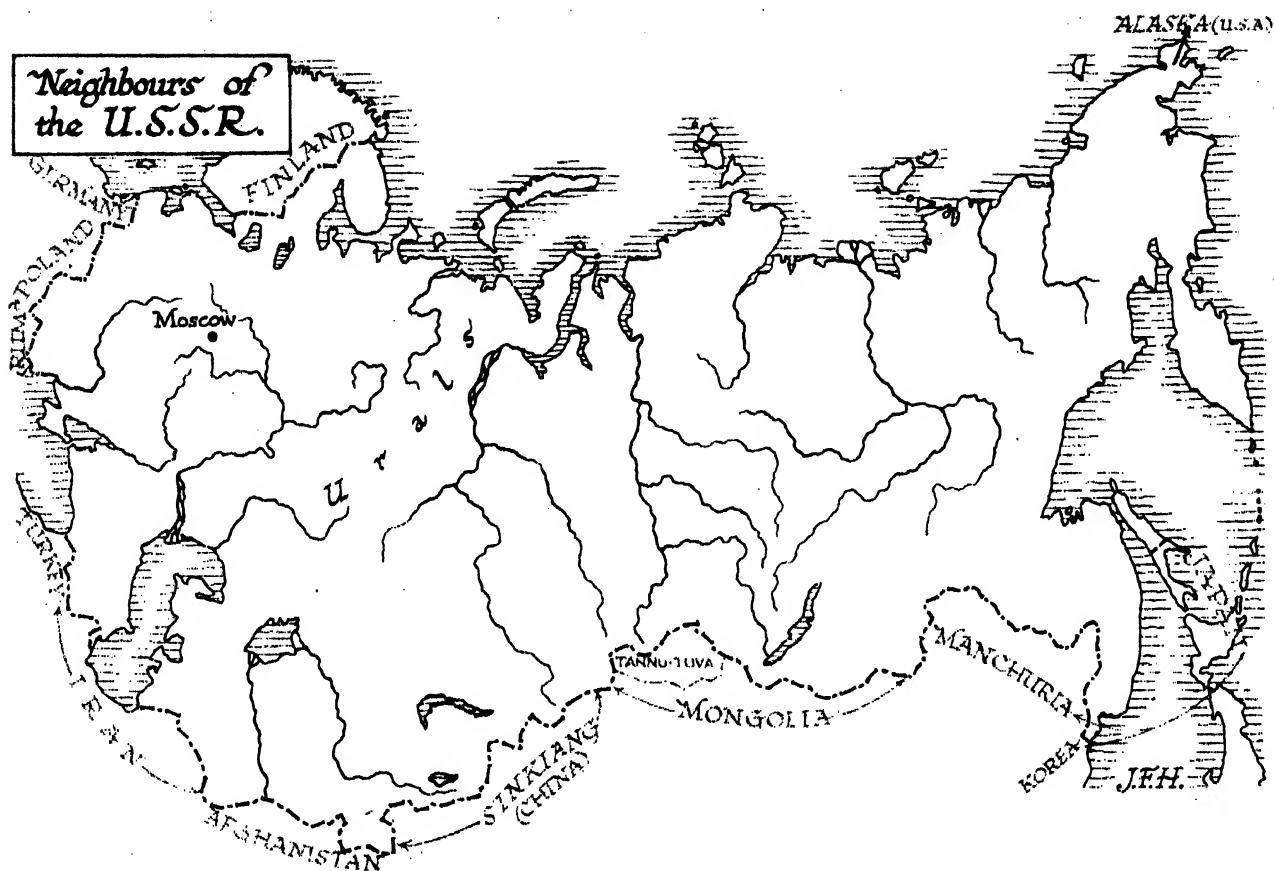
greater per mile of track in 1937 than in Great Britain or the U.S.A. Between 1913 and 1939 the length of inland waterways used for transport increased from 38 to 66 thousand miles and the freight carried from 18 to 67 million tons. Maritime transport has increased too. Formerly most Russian ports were badly equipped, but since 1918 they have all been improved by the construction of new docks, cold storage plants, grain elevators, warehouses, etc.; and the installation of modern loading and unloading devices. The most important ports (e.g. Odessa) lie around the Black Sea and deal largely with grain and oil. The northern ports (Leningrad, Murmansk and Archangel) are, with the exception of Murmansk, icebound during winter. Several new ports have been built (e.g. Igarka) along the Arctic Sea route (between Murmansk and Vladivostok), which are now in regular use every summer. The great Far Eastern port of Vladivostok, the Pacific naval base of the U.S.S.R., is kept open by icebreakers all the year round. The general level relief of the land and a climate which is not subject to great variation, have assisted the development of aviation—passenger, freight and mail services. In 1938 the total length of civil aviation lines was twice that of 1935 and the amount of freight carried increased about twenty times during the same period. On the Arctic routes alone, 12,000 passengers, 338 tons of freight, and 338 tons of mail were carried in 1938. The total length of the air-lines of the Northern Sea Route in 1938 was nearly 8,000 miles. Every part of the Soviet Union is now connected with Moscow by regular air services.



SOVIET SOCIALIST REPUBLICS—(1) R.S.F.S.R. ; (2) Ukrainian S.S.R. ; (3) Byelorussian S.S.R. ; (4) Lithuanian S.S.R. ; (5) Latvian S.S.R. ; (6) Estonian S.S.R. ; (7) Georgian S.S.R. ; (8) Armenian S.S.R. ; (9) Azerbaidjan S.S.R. ; (10) Kazakh S.S.R. ; (11) Turkmen S.S.R. ; (12) Uzbek S.S.R. ; (13) Tadjik S.S.R. ; (14) Kirghiz S.S.R. (15) Karelo-Finnish S.S.R. ; (16) Moldavian S.S.R.

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49 THE NEIGHBOURS OF THE SOVIET UNION

With a land territory stretching across one sixth of the world, the Soviet Union has obvious possibilities for economic and political relations with a number of European and Asiatic states. The position of her coastlines gives her access to the Baltic, Mediterranean and Pacific. Hence the declared foreign policy of the U.S.S.R.—her desire to maintain peaceful and friendly relations with all her neighbours—is of the utmost importance for the future peace and economic reconstruction of the world.

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